



HUNTS

HUNTER NATIONAL TRAINING SCHEME

TRAINING MANUAL



NEW ZEALAND DEERSTALKERS ASSOCIATION INCORPORATED



Compiled 1987 by Rob McMillan

Revised 2002 & 2006 by Rob McMillan & Bill O'Leary

Revised 2019 by Jim Peffers

Revised 2022 by Rob Howey, Erin Hewetson, Mike Spray, Pete Henderson,
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The Trust was established as a charitable trust in 2015 with the purposes to provide education in responsible and ethical hunting and to educate hunters in safe firearm handling in a hunting context.

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FOREWORD

Te Wāhinga Kōrero

This revised manual was made possible by a Department of Conservation Jobs for Nature funding grant. This grant was awarded to boost the Hunter National Training Scheme (HUNTS) through enabling the employment of our HUNTS Team. This was achieved through a great deal of hard work from NZDA's CEO, Gwyn Thurlow, and our Volunteer National Coordinator, Rob Howey.

Through the grant funding NZDA established four new positions that are working alongside our current volunteer network to enhance the invaluable hunter training that was established in 1987.

The grant funding was awarded in partnership with the NZ Game Animal Council who, over the next three years, will develop a complementary online safety and education program to support NZDA's long-standing practical HUNTS programme.

We would like to acknowledge the original author Rob McMillan who in 1987 wrote the first version of the manual to support the training syllabus drafted by Bob Badland. Subsequent revisions and updates have been made by Bill O'Leary and Jim Peffers to take into account changes in the New Zealand hunting landscape and the technologies available to hunters. Without their extensive knowledge this manual would not exist.

We are extremely grateful to all our volunteer instructors and assistants who graciously commit their time, knowledge, and experience to assist in educating new hunters.

We hope you find this manual a helpful resource for beginning your hunting journey.

Happy and safe hunting!

Rob Howey

Volunteer National
HUNTS Coordinator

Erin Hewetson

National HUNTS
Coordinator

25th May 2022



INTRODUCTION

Kupu Whakataki

You are reading this manual because you wish to go hunting and have enrolled in NZDA's Hunter National Training Scheme (HUNTS) course.

The purpose of this manual is to support the HUNTS course practical training and assist hunters wanting to refresh their skills or introduce those unfamiliar with hunting in order to enjoy safe and ethical hunting.

To be an effective and successful hunter you need hunting skills, bushcraft knowledge and the ability to travel and survive in New Zealand's backcountry.

You also need knowledge of the animals you are hunting, and be able to apply this knowledge to situations where you are hunting the various species in different kinds of country.

A good hunter will look after their gear and take the time to acquire skill in its use. Examples are the time taken to learn how to navigate using a map and compass, handle a rifle safely, shoot accurately and how to recover and process your game animal.

In addition, hunters should give back to the hunting community and society in general by practicing sound conservation values. This helps to maintain the social licence to hunt in an era where firearms ownership and hunting are coming under closer scrutiny. This may be through involvement in hut and track maintenance or pest trap line monitoring. This course will give you the basic skills required to become a confident, knowledgeable hunter. After the course it will be up to you to enhance your knowledge and skills, to learn, practise, and enjoy the experience of hunting and to become an active member of your local NZDA branch.



FIG. 1. Wellington & Porirua HUNTS course scenery - Image: Les Ryan

1 ETHICS, ECOLOGY & REGULATIONS

Te Wāhinga Kōrero

Ethics

Behaving ethically is “doing the right thing when no one else is watching”. Ethics are defined as moral principles that govern a person’s behaviour. It is in everyone’s interests to behave ethically, and to encourage others to do the same. If even a few hunters behave badly, we can all suffer the consequences and be seen as unethical.

Some activities may be unethical yet still legal, however people are judged by their actions. The way you act and the way your companions act will affect others. Examples include shooting or wounding an animal without putting in the effort to recover it.

Anti-hunter sentiment is aroused by illegal hunting and other bad behaviour. Hunters (or people believed to be hunters) have been known to damage property and have killed or maimed farm animals or pets. Even landowners who support hunting are naturally enraged by property damage and lack of courtesy. Poor, unsafe behaviour with firearms can also cause serious trouble with the law or loss of hunting buddies.

The hunter usually has no audience to approve or disapprove, it is therefore your personal challenge to behave ethically and encourage others to do so as well.

“Ethical behaviour is doing the right thing when no one else is watching—even when doing the wrong thing is legal.”

– Aldo Leopold, *The Sand County Almanac*

People who share the same interests and beliefs often form groups, NZDA is an example of one such group. NZDA, along with some other hunting clubs, has a code of ethics. These may have been written in the 1930s in a different society but the general theme is still valid today.

Your personal ethics may well be stronger than NZDA's, but the Association's code of ethics should always be the minimum standard acceptable for members.

All land in New Zealand is owned or administered by a private owner, iwi, company, or government department. The law abiding hunter will obtain permission to enter and hunt, if permission is refused you should accept and respect this decision. While hunting, the ethical hunter takes care to avoid disturbing livestock, and abide by all conditions imposed by the landowner or administrator. If hunting with a dog, special considerations are taken into account to ensure there is no harassment of farm animals by the dog.

NZDA field guidelines apply to every member, and the rules of fair chase also apply.

A Member of NZDA will:

1. Approach recreational hunting from the highest possible level of ethics, having due regard to the welfare of the animals hunted, and prevention of cruelty to the same by minimising distress and suffering and to humanely kill animals being hunted.

2. Not hunt or carry a firearm on property without the proper approval of the owner, occupier or controlling authority and shall strictly observe any conditions imposed upon him
3. Be a responsible firearms owner and abide by current Firearms Laws.
4. Avoid unnecessary or deliberate damage to the environment, respect property, and other users of the outdoors.
5. Advocate sensible conservation practices at all times and promote New Zealand's biodiversity 'in situ'.
6. Practice the Field Guidelines when out hunting.
7. Be exemplary members of NZDA by promoting and abiding by its Rules, Field Guidelines and this Code of Ethics.

Field guidelines policy of the NZDA

1. To approach recreational hunting from the highest possible level of ethics, with due regard to the welfare of the animals and the prevention of cruelty to same by minimising distress and suffering and to humanely kill animals being hunted.
2. To encourage the use by hunters of sporting arms of calibre and/ or power adequate to ensure quick clean kills of the particular game species being hunted.
3. To encourage the fullest possible use of the game killed by hunters and to avoid always, unnecessary wastage of the game resource.
4. To promote safe practices by ensuring oneself and others are suitably trained to minimise risks in the outdoors.
5. Respect the property of others and respect the natural environment.
6. To assist in the gathering of research information from the animal secured for NZDA (and related) research programmes.

NZDA national policy includes the encouragement and preservation of the rights of all landholders, the fostering of interest in native flora and fauna and their conservation, and strenuous opposition to commercial exploitation of wildlife and natural resources when this jeopardises public usage or is contrary to sound conservation.

Meaning of Fair Chase

When hunting, the pursuit of game should be governed by the “fair chase” principle. This ethic demands that a hunter shall always give the quarry a fair chance.

NZDA defines ‘Fair Chase’ to mean: the ethical, legal and sports person-like taking of any free-ranging wild game animal that has an unimpeded avenue of escape on both private and public lands.

For trophies to be eligible to be submitted for National Antler, Horn and Tusk Competitions, they must have been taken following the rules of Fair Chase, meaning:

A fee or payment must not have been made in connection with the trophy.

The wild game animal or trophy must not have been taken using the following means or methods:

- Taken in an enclosed area i.e., behind deer wire or any such fence or fixture that impedes the animal's unrestrained chance of escape.
- Restrained i.e., in a snare, trap, fence, etc.
- Taken with the aid of a spotlight or use of night vision equipment or thermal scope.
- Taken from an aircraft, powered vehicle or vessel.
- Coursed by dogs, with the exception of wild pigs.

The trophy is of a Wild Game Animal taken legally under Fair Chase conditions, as defined above.

NZDA defines a ‘wild game animal’ to mean:

- All feral self-sustaining populations of game animals, whether these be from the acknowledged existing feral ranges of the animals or from new, satellite herds which have developed from natural spread, liberations or escapees.

The Ethical Hunter

An ethical hunter will show respect for game animals and not kill indiscriminately unless sure they can do so cleanly and recover to use the meat or trophy. They do not just shoot any animal they see; exceptions sometimes exist when destroying introduced pests such as stoats, weasels, ferrets, and possums that kill native flora and fauna, or when managing game animal populations.

Following these principles and then getting close enough to ensure a clean kill will mean that the chances of making a mistake are greatly reduced.

An ethical hunter is so concerned for their quarry they will expend an extraordinary effort to find and dispatch wounded game, including game wounded by another hunter. If it appears that the shot was missed, the ethical hunter will carefully inspect the spot where the quarry stood, and along the direction of escape to ensure it was not hit. A tuft of hair or splash of blood on leaves can tell the story.

Before firing a shot, the ethical hunter will also make sure that the game is in a recoverable position. This is frequently an issue when mountain hunting: the carcass may fall into an inaccessible position or if the animal does not fall where expected it may be impossible to climb up (or down) to it. After the kill, this hunter will show respect and try not to allow meat or other usable parts of the animal be wasted. Meat recovery depends on your situation. Every effort should be made to recover the maximum quantity of meat out of respect for the animal.

Ethics and Safety

First and foremost, hunters should always be safe. Whilst you must always try to practice ethical behavior, safety is your primary concern. Always apply the Seven Basic Rules of Firearms Safety while hunting.

Take a moment here to consider a potential tragedy: sadly, almost every year at least one person shoots another in the bush, usually stating afterwards they were certain they saw a deer. Your mind can fool you into seeing what you expect to see especially when tired or keyed up with excitement. No hunter is immune to making such a mistake no matter

how experienced; there is some evidence that experienced shooters become more complacent in this regard.

For more information on firearms safety refer to Chapter 5: Firearms Selection, Safety & Marksmanship.

Wildlife Conservation

In a hunting context, wildlife conservation is about managing game animal populations and herd structure to protect the environment and provide a sustainable resource to hunt.

Wildlife habitat must provide everything the animal needs to survive, including places for feeding, drinking, resting, breeding and shelter from the elements or any predators (including hunters). When these factors are good, wildlife numbers flourish. If any factor comes into short supply the animals move away or die.

A given habitat can only support a certain number of a particular species, known as the carrying capacity and this varies from place to place and between seasons. The carrying capacity of the land takes into account all important factors including predation. The carrying capacity of the land may not always be achieved. Factors such as over-predation (sometimes through hunting pressure) and herd structure of the animal may restrict numbers below capacity. Wildlife management involves sustaining habitats to maintain carrying capacity and overall herd quality, wildlife development is the enhancement of carrying capacity.

Each species prefers specific plant food sources, regardless of others that may be available. Some plants are more nutritious than others. Game animals can alter the local flora to an extent that they completely change the vegetation type, which can have serious implications for other species. It can also change the suitability, trophy potential and carrying capacity of the environment for game animals in the long term. In short, we need to identify the limits of acceptable change and manage game animals to ensure we stay within these limits. This will help sustain hunting while also looking after the land.

In the past, NZDA focus was primarily on stags for trophy heads and the shooting of hinds was frowned upon. However, today's situation is

different. Relatively higher deer and tahr numbers, for example, mean hunters need to be shooting females of some species to affect population dynamics. This will help lessen overgrazing effects on local flora, in turn conserving the habitat. Continue to target stags or bull tahr for trophy value but manage herd dynamics by choosing the older, mature specimens for such trophies.

Pest Management

Compounding the conservation problem, New Zealand has introduced non-game animals such as wasps, possums, mustelids (stoats, weasels, ferrets), rats and cats. Possums have impacted many tree and plant species to the detriment of both native birds and game animals. Mustelids, rats, and cats have devastated bird populations. Wasps have reached such high numbers in lower altitude beech forests that they can be a danger to humans, destroy food supplies for birds and kill birds by attacking chicks in the nest. They can also predate on local insect populations which has serious ecological consequences. A worrying aspect of pest management in New Zealand has been the controversial application of pesticides over large areas of our forest (e.g., 1080). Poison pellets may be dropped by helicopter with the intention of eradicating possums but can also kill deer as by-kill. To minimise these unintentional killings, deer repellent is now applied where practical and advocated for by the NZDA.



FIG. 2. Hare in the kanuka - Image: John Lumsden

Wildlife Management

In New Zealand, wildlife is managed on private land by landowners, who may allow recreational hunters access to hunt. For public (government) land the four main entities that have a role in managing wildlife are:

1. Game Animal Council (GAC)
2. Fish and Game (F&G)
3. Department of Conservation (DOC)
4. Various Regional Councils



FIG. 3. Hunters have a role to play in animal management - Image: Nelson Branch

1. Game Animal Council (GAC)

The GAC is a statutory body established under the Game Animal Council Act 2013. It represents the interests of the hunting sector and will improve management of hunting resources while contributing to positive conservation outcomes.



The GAC's Objectives are to:

1. Enhance the quality of game animal herds while remaining consistent with conservation values
2. Develop positive relationships between the Game Animal Council and stakeholders
3. Promote hunter safety
4. Reduce conflict among stakeholders
5. Improve the acceptance of hunting as a safe and legitimate activity
6. Promote standards for hunting and management of game animals

Key Functions of the GAC Include:

- Advising and making recommendations to the Minister of Conservation on hunting issues
- Providing information and education to the sector
- Promoting safety initiatives
- Conducting game animal research
- Undertaking management functions for designated herds of special interest

For more information, visit: www.nzgameanimalcouncil.org.nz

2. Fish & Game NZ

Fish & Game NZ is the statutory manager of game birds and recreational freshwater fish. Big game hunters who wish to enjoy duck shooting or freshwater fishing need to obtain a game bird or fishing license and observe the regulations of the area.



Fish & Game NZ manages, maintains and enhances sport fish and game birds and their habitats, to protect the long-term interests of present and future generations of anglers and hunters. They are not a government department, they are a not-for-profit organisation, funded through the sale of fishing and hunting licenses.

For more information about game bird hunting and how to get a license, visit: www.fishandgame.org.nz/game-bird-hunting-in-new-zealand

For more information about sport fishing and how to get a license, visit: www.fishandgame.org.nz/freshwater-fishing-in-new-zealand

3. Department of Conservation (DOC)



Department of
Conservation
Te Papa Atawhai

DOC are responsible for managing the conservation estate in New Zealand, which includes our National Parks, Reserves and conservancies. DOC have the responsibility for managing public tourist facilities like campgrounds, huts, and tracks. They also manage animal numbers through hunting on public land, both recreational and official animal control operations, known as Aerially Assisted Trophy Hunting (AATH) or “heli-hunting”. In addition, DOC uses 1080 poison to manage pests like possums, by contracting poison and pest control companies.

If you intend to hunt on public land (which is administered by DOC), you will need to apply for a hunting permit before you go. This can easily be done online, and the permit is then emailed to you. You could print the permit and carry it with you while hunting, but if you take your mobile phone hunting, you can download the permit onto your phone instead. You must have a current permit in order to hunt legally on Public Land, it makes the assumption that you have a firearms licence, but if you are unlicensed and going hunting with a licensed hunter, you will still need to get a permit. You must ensure you abide by the conditions set out on the permit (e.g., minimum calibre of .222, no spotlighting on Public Land etc.).

The hunting permit process can be found through DOC's website: www.doc.govt.nz/parks-and-recreation/things-to-do/hunting/permits-and-licences/hunting-permit

For more information, visit: www.doc.govt.nz

4. Regional Councils

Many of New Zealand's regional councils manage public land available for hunting under the terms of their region's park management plans.

You can visit your local regional council or check their website for permits and terms of access.

Hunter's Responsibilities

Hunting carries responsibility. Your attitude towards landowners and other outdoor users is critical to being able to hunt. Some of your responsibilities are as follows:

1. Iwi, Tangata Whenua

Some hunting can be done on Māori owned land, usually by invitation or permit. Examples include Te Urewera, the Central North Island sika blocks and Māori managed blocks for whitetail on Stewart Island. Some areas of this land may be of cultural significance, for example if you are told not to camp or toilet in a particular area, then don't. You may not be able to bathe in a certain pool or cut certain vegetation either.

Whatever the conditions imposed, always respect them and care for the land as the iwi do. They hold mana whenua (rights) and are the kaitiaki (guardians) of that land and their traditions.

2. Other landowners

The respect shown to other landowners should be similar, respecting any conditions of access and hunting that they may impose. It is their land that you are hunting and if you wish to return again you need to act responsibly. Some forestry blocks allow the use of shotguns for hunting pigs, for example, whereas shotguns are not allowed on Public Land. Some NZDA branches have negotiated access to forestry blocks for their members. Once again, abide by the rules set out for access to the specific land you wish to hunt.

3. Other outdoor users (non-hunters)

Public land in New Zealand is open to all users, be they hunters, trampers, anglers, or mountain bikers. Each has the same right to use the

land, huts and tracks for their chosen recreational pursuit. As hunters we must acknowledge that others may not agree with hunting or have a fear of firearms. You must demonstrate that you are a safe and responsible hunter at all times. This means demonstrating the **Seven Basic Rules of Firearms Safety** at all times, paying special attention to showing that your rifle is unloaded and secured when not in use.

DOC - Take Care of Aotearoa

1. Protect Nature

Keep your distance and don't feed wildlife. Follow any rules restricting dogs, fires, drones and vehicles.

2. Be Prepared

Stay safe in the outdoors by planning and preparing for your trip.

3. Keep New Zealand Clean

Take all rubbish with you and use toilets where provided.

4. Show Respect

Respect others, respect culture.

Environmental Care Code

Ten Point Checklist

1. Protect Plants and Animals

Treat New Zealand's forest and birds with care and respect. They are unique and often rare.

2. Remove Rubbish

Litter is unattractive, harmful to wildlife and can increase vermin and disease. Plan your visits to reduce rubbish, and carry out what you carry in.

3. Bury Toilet Waste

In areas without toilet facilities, bury your toilet waste in a shallow hole well away from waterways, tracks, campsites and huts.

4. Keep Streams and Lakes Clean

When cleaning and washing, take the water and wash well away from the water source. Because soaps and detergents are harmful to water-life, drain used water into the soil to allow it to be filtered, or use biodegradable soap.

5. Take Care With Fires

Portable fuel stoves are less harmful to the environment and are more efficient than fires. If you do use a fire, keep it small, use only dead wood and make sure it is out by dousing it with water and checking the ashes before leaving.

6. Camp Carefully

When camping, leave no trace of your visit.

7. Keep to the Track

Although hunters don't hunt on a track, they do use them to get into some hunting areas. By keeping to the track, where one exists, you lessen the chance of damaging fragile plants.

8. Consider Others

People visit the backcountry and rural areas for many reasons. Be considerate of other visitors who also have a right to enjoy the natural environment.

9. Respect Our Cultural Heritage

Many places in New Zealand have a spiritual and historical significance. Treat these places with consideration and respect.

10. Enjoy Your Visit

Enjoy your outdoor experience. Take a last look before leaving an area; will the next visitor know that you have been there?

Chapter 1: Ethics, Ecology & Regulations

Te Wāhinga Kōrero

Key Learning Outcomes:

- Explain the main responsibilities of hunters toward iwi, landowners, DOC, and other outdoor users.
- State at least 5 ethical hunting responsibilities of an NZDA member.
- Explain actions relating to Care for Aotearoa.
- Explain the main code of conduct that a hunter should apply to wildlife conservation.
- Demonstrate all the above by behaviour in the field.
- Explain land safety code practices.

Notes:

2 EQUIPMENT & FOOD

Ngā Taputapu me te Kai

Hunting is a physical outdoors activity, undertaken in a range of weather conditions and environments, oftentimes extreme. Having the right clothing and equipment for the type of hunting you are doing is essential for survival, enjoyment levels, and may also contribute to your success. It is worth spending the time to get your equipment right because having the wrong equipment can ruin your hunting experience.

Boots

Hunting involves being on your feet for long periods of time on uneven terrain. Boots give the support and protection needed in New Zealand hunting areas.

Boots need to be hard wearing and supportive and matched to the terrain you are hunting. Hunters will commonly be walking offtrack through knee high vegetation, wet ferns, streams, rocks, riverbeds, and deep mud. You will spend most of your day sidling or going up and downhill, so your boots need to be designed to handle these stresses. Generally, a stiffer sole is preferable in steep, alpine country where a soft to medium sole may be more suited to bush environments.

Choosing a pair of boots to suit the type of hunting you do or the areas you hunt in is important. Look at what experienced hunters are wearing and ask for their thoughts, you should also look for boots that are designed to be used with a pack or under heavy load.

All new pairs of boots should be worn in, i.e., wear them around the house or go on some easy trails to break them in. If you don't break



FIG. 4. Hunting boots - Image: Mike Ng

your boots in, you will find that on your first trip the boots are tight and uncomfortable and will result in badly blistered feet.

A soft innersole can help, choose these carefully with an eye to drying out and easy cleaning, remembering that your boots will often be in water for long periods. There are several options available, depending on whether you need comfort, support, or both. The best insoles are orthotics, but they are considerably more expensive.

Boots need to be roughly half a size bigger than your regular shoes to accommodate thicker socks and are best when laced to a firm fit around the foot but less tight around the ankle. Some manufacturers make this possible by fitting hooks instead of eyes above a certain level which also helps in donning and removing boots quickly. If there are eyelets all the way it may be necessary to lace firmly to the top of the instep, tie a reef knot, and then continue lacing more loosely to the top of the boot. Wind the extra lace around the top of the boot before tying and tucking loose ends in.

It is recommended that you buy the best quality boots you can afford from a reputable manufacturer. This approach will save you money and pain in the long run.

Tips

- When buying boots, shop later in the day when your feet are warm and slightly swollen from walking.
- Take the socks you will be wearing with your boots.
- Ask if your boots can be sized using a foot-measuring device.
- If there is a ramp in the shop, walk up and down to see if your heels slip back or your toes jam forward.
- When walking down a steep surface, toes should not hit the front of your boots. Check that your toes are free to wiggle and are not touching the front of the boot.
- Make sure your heels don't move up and down in the boot as you walk.
- Make sure the boots feel comfortable when you flex your ankles.
- Bear in mind that most boots will soften a little as you break them in.

Socks

Sock selection is important. Hunters usually wear a pair of socks for multiple days, so the pair you select need to be comfortable and durable. Socks designed for the outdoors are made from synthetic fabrics, wool, and a mixture of both materials. Some have padding in the ball of the foot and heel for extra comfort but be sure to smooth them out when pulling socks on. Remove all wrinkles or bunching as they can cause blisters.

Gaiters

Gaiters help to keep debris out of your boots, and assist in protecting your shins. Gaiters come in short, tramper length or in the higher "snow gaiter" length, which provide more protection. Fastenings may include domes or Velcro for putting them on, otherwise you need to put the gaiters on before you get into your boots. Gaiters often come with a hook or underfoot wire



FIG. 5. Sturdy boots and gaiters are key pieces of equipment - Image: Stoney Creek

to keep them down at instep height on the boot. Different materials will have different properties, for example nylon can be very noisy as you travel through the bush while fleece can be quieter in comparison.

Clothes

No single garment can cope with both hot and cold extremes of the outdoors, and it is best to wear a combination of light, loose layers that can be removed or added to as necessary.

You should select clothing based on the principles of layering, which traps warm air between the layers of clothing, enabling you to adjust clothing to the conditions and use a range of materials for different purposes. For example, merino wool helps wick moisture while in comparison Goretex works well as a windproof layer.

Wool and synthetic materials such as polypropylene are light, keep you warm when wet, are breathable and will dry easily. Wool or synthetics can both be used to make the full range of clothing from underwear to outer garments.

Camouflage clothing can help to break up your outline so that you are better disguised against the natural backdrop. Basic earthy



FIG. 6. Ridgeline hunter clothing - Image: Mike Ng



FIG. 7. Ascent gloves - Image: Ridgeline



FIG. 8. Lambswool Blaze Beanie - Image: Ridgeline

tones such as brown and green are preferable to high contrast colours like white or yellow.

Some hunters prefer long pants while others prefer shorts depending on the hunting environment and time of year. Bare legs can dry faster and make less noise in the bush whereas long pants often become wet and heavy. Long pants or over-trousers can provide protection when hunting in wasp country. If you choose to wear long pants, synthetic material makes less noise and does not get cold when wet as some other fabric choices can. A popular combination is polypropylene leggings with shorts over the top.

Avoid cotton clothing as cotton does not keep you warm. When wet, cotton will wick away body heat to make you cold and wet. Even your own sweat on a cotton t-shirt is enough to make you cold.

In wet conditions, a breathable waterproof jacket is required, such as those made from Goretex or eVent. A good quality jacket is worth its



FIG. 9. Spare dry clothing for at camp - Image: Mike Ng

weight and should always be carried. If the weather looks like it might be coming in, some also carry lightweight, waterproof over trousers which give another layer of protection to the legs and in conjunction with a good jacket adds further protection against the elements.

Non breathable waterproof jackets (e.g., nylon or PVC parkas) can quickly become wet inside from condensation so that within an hour you can become as wet as if you hadn't been wearing a jacket. These materials are also noisier when hunting so are therefore not recommended.

Gloves are essential in cold weather. Thin polypropylene gloves can be adequate but as the weather gets colder, consider fleece or woolen mittens. Canvas or Goretex mittens and gloves provide protection against strong wind, beware that wearing gloves or mittens may affect your trigger control.

A large proportion of body heat is lost through your head and neck. Wear a fleece or woolen hat to retain heat. A balaclava will provide extra warmth in cold conditions, you can pull the balaclava down to the neck when it becomes colder, or if you are hot it can be rolled up or taken off completely.

Protection from the sun is also important, so consider taking a wide brimmed or legionnaire type hat that covers your ears and neck. Caps are popular but do not offer the same protection.

Always carry spare, dry clothing to change into when you reach camp as your clothes can become wet from sweat even if it is not raining. Spare socks, a woolen or synthetic fleece top and a set of thermal top and bottoms would be a minimum. When you leave camp, change back into the clothing you wore the day before, remember that you should always keep at least one set of clothes completely dry for the end of the day.

When drying wet socks and boots, keep them well away from fire. Leather and synthetics are quickly damaged by forced drying or heat so need to be dried slowly. Turn wet boots upside down to drain. In lea country, don't leave your gear outside to dry unless you watch it very closely.

Tips

- Breathable waterproof material needs to be kept clean and free from oil and grease to perform properly. Keep the manufacturer's cleaning and maintenance instructions handy and follow them strictly to maintain performance.
- Research with other hunters for recommendations before buying new clothing.
- Consider a longer jacket which will protect your backside when seated.

Packs

Most modern pack designs use an internal frame which can be individually fitted and gets the load closer to your body. This improves your balance and reduces the leverage on your shoulders. Internal frame packs come in short, medium, and long fittings for different sized wearers, the critical part is the measurement from hip to shoulder.

To fit the pack, get someone to hold the frame bars and bend them to match the curve of your back. Then, with the frame bars fitted, you can adjust the hip belt. The hip belt is there to support the weight of the pack on your hips. Adjust the shoulder straps until they are firm but not too tight, then adjust the length of the straps that connect the top of the pack to the shoulder straps.

The weight of your pack should mostly be carried on your hips, and the adjustment straps at the top of the pack should be tight enough to just



FIG. 10. Example of 70L pack -
Image: Mike Ng



FIG. 11. Example of 110L pack -
Image: Gwyn Thurlow

make it touch your shoulders.

The final adjustment is to the chest or sternum strap, which crosses over the front of your ribcage. This is usually an elasticated strap and needs to be tight enough to pull the shoulder straps together just a little. If you don't use it or if it's too loose, you may soon feel a tingling in your hands as the shoulder straps begin to cut off circulation.

You will generally make further, minor adjustments to strap tension once you have been walking for a while, watch for slipping straps that may make your load sit poorly.

A properly adjusted internal frame pack should be comfortable even when heavily loaded. You need to get used to the weight distribution so that you do not overbalance when crossing a river or descending steep terrain.

The volume of a pack depends on the length of time you intend to be out hunting, as a general rule for overnight bush hunts a pack of 30–45L should suffice. Weekend hunts require 45–60L and for multi day or alpine hunts carry a 60–90L pack. Don't forget you still need room to carry meat as well as your personal gear.

Hunters are the only bush users that hope to come out heavier than they went in, so while you should get the lightest pack that will meet your needs, it still must be robust and comfortable enough with the ability for extra weight.

Tips

- Don't buy a pack that's too large as you will only fill it with gear you won't use, however some excess space is necessary for packing out meat.
- A plastic pack liner or drybag helps keep your gear clean and dry.
- Beware that mice and rats can chew holes through your pack to get at any food items.
- Pack the heaviest items near the centre of your spine, and the lightest items on top. This will keep your centre of gravity as low as possible to support your back and avoid strain.
- Keep items you may need while walking in an easy to reach pocket (e.g., spare ammunition, raincoat, camera, snacks, toilet paper).
- Wrap sharp or hard objects in clothing so they will not wear holes in your pack or injure you.
- If your pack gets dirty, scrub the inside and outside with soap and water, then dry before storing.
- Removing tents or sleeping bags from their covers can help to condense equipment into your pack.
- Carry liquid fuel for stoves in a side pocket to prevent any leaks from damaging equipment or clothing.

Day Pack

Ideally your day pack will be 30-45L and strong enough to carry a boned out animal as well as your essentials such as survival kit, navigation equipment, knife, lunch, water, raincoat, etc. On an overnight or multi day trip, some hunters opt for carrying their main pack during the day. Many day packs are made of fleece material, which makes less noise when moving through the bush. Your day pack can also come in handy as a rest to lay the rifle on when taking a prone shot.

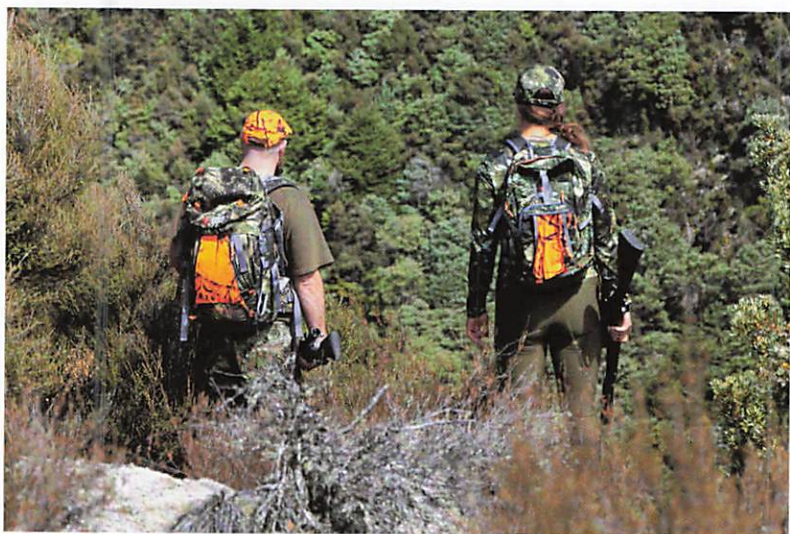


FIG. 12. Stoney Creek daypacks - Image: Mike Ng

Knives

A good knife is essential for field dressing, skinning, boning and preparing a trophy for taxidermy. Sometimes a sheath knife is chosen because the blade is a little longer, but no more than a 100 mm blade is needed for basic skinning and field dressing. Lock-blade pocket knives are popular because they have the same capabilities as a sheath knife but are much lighter.

A drop point blade or one with a gut hook is useful but not essential when slitting skin along the belly to ensure that you don't accidentally cut the stomach. A slightly curved shape along the sharp edge towards the point is also useful in parting skin down the legs. The handle should be shaped to fit the hand in all angles and have an easily cleaned nonslip surface. Keep your knife hand clean and free of blood when processing the animal. The blade must hold a sharp edge to be capable of repeatedly cutting through coarse hair and hide.

There are specific meat or boning knives that can be used for different stages of processing game, such as boning or cutting steaks. There

are also specialized knives such as skinning knives and scalpels with interchangeable blades, used for head skinning or capping.

There is a lot of variation among knife sharpening steels, beware that a blunt knife can be just as dangerous as a sharp one because you need to exert more force with less control of the blade. For sharpening while hunting, a diamond steel is recommended which is small and easy to use.

Many knife sharpening systems use fine, medium, and coarse stones, so you can use the one appropriate to the amount of work needed to sharpen the blade. Honing oil should be used as it floats the tiny particles of steel, keeping the stone clean and allowing the blade to move smoothly. Fat, blood, or dirt will ruin the stone, so always start with a clean knife. A good quality stone should last a lifetime. There are other tools you can use to sharpen your knife such as the Lansky sharpening system, which provides angle guides to sharpen a blade.

Besides a knife, a saw is useful for removing antlers and can also be used to cut wood at camp. Remember if travelling by domestic airline to put the knife in your checked luggage – don't risk having it confiscated at security.



FIG 13. Fixed, drop point style knife - Image: Ampro

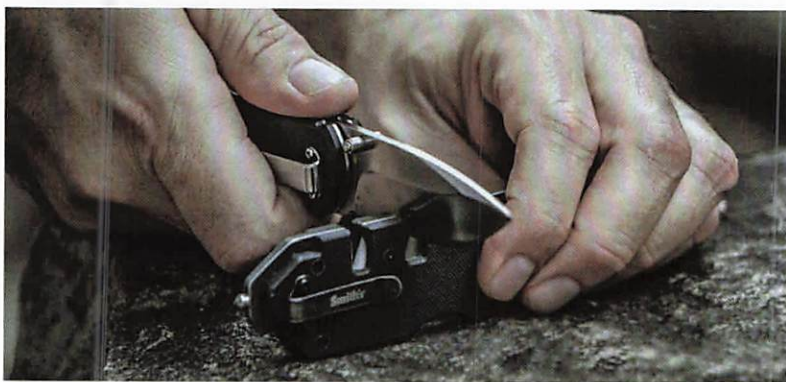


FIG. 14. Pocket Pal knife sharpener - Image: Ampro

Backcountry Lighting

In the past, candles were the standard means of lighting for backcountry huts and camps and a torch was used for the walk back to camp in the evening. New technology has now provided hunters with modern and reliable means of lighting for backcountry use. Modern LED lights and torches are far more energy efficient and have a much greater life span. Today light is measured in lumens, and higher lumens means that more light is dispersed.

LED lanterns provide a central lighting source and are ideal for the hut or camp as they are efficient, lightweight and can be powered by lithium or alkaline batteries however lithium will outperform alkaline in cold conditions. Solar powered lanterns are a popular compact option, but they require around 6 hours of charging in sunlight.

LED headlamps have replaced the handheld flashlight as they are reliable, durable, and being worn on the head leaves your hands free. Many headlamps are adjustable, providing a narrow or wider beam depending on your needs. Some also have a power saving mode which gives the option to have less light and conserve power.

A headlamp is an essential piece of equipment, not only for use around camp but for carrying in your day pack as it is small and light. Like most outdoor equipment headlamps vary in price and quality, but it pays to invest in a good quality headlamp and batteries to provide the greatest reliability.

Binoculars

Binoculars are an essential piece of equipment which come in several different types and models. Binoculars are used for spotting game and identifying your target. Hunters call the use of binoculars “glassing”, which means actively scanning for game.

Binoculars in a hunting context should be either 8 x magnification or 10 x magnification. Models are described using two numbers; for example, 10 x 42 describes that the binoculars have 10x magnification and a 42mm objective lens. Larger objective lenses increase the amount of light taken in which is beneficial in low-light conditions. The trade-off for larger magnifications or objective lenses is weight and cost.

In open tussock country, a larger magnification is generally better. In the bush a smaller magnification is better for identifying an object because you want a wider field of view. Choosing an optic is a personal decision and should be made after researching the many options available, 10 x 42 are what most hunters use as they are versatile and best suited for New Zealand’s various hunting environments.

Buy as high-quality binoculars as you can, ensuring there is a strap or harness for making them easily carried and accessible. Many people use an after-market “bino harness” or “bino case” to keep their binoculars easy to access and safe from damage.



FIG. 15. Binoculars, at left are an example of range finding binoculars - Image: Mike Ng

Rangefinders

A rangefinder is a piece of equipment used by hunters in the field to help determine the distance to a target or object, which is an important consideration for making a clean and ethical kill.

There are three types available:

- a small handheld unit specific for ranging:
- binoculars with a built-in rangefinder, (but these are very expensive):
- rifle scopes with a built-in rangefinder.

The rangefinder sends a laser to the game spotted and a unit calculates the distance giving a read out on the screen. This allows you to know how close you need to get for an accurate shot.

Purchase as high-quality rangefinder as possible to ensure they are durable and waterproof.



FIG. 16. Rangefinders & range finding binoculars - Image: Mike Ng

Handheld GPS Units

A GPS or Global Positioning System uses a series of satellites to trilaterate your position. In conjunction with your map, the information on your GPS can help you pinpoint your exact position on a map within a few meters. They have a myriad of useful functions built in, from 'Marking' your campsite, a fresh wallow or deer sign, to functions that include a compass and tracking system. 'Marking the spot' allows you to come back to that spot later or return to your starting point or destination safely (including after dark). Modern GPSs have a huge amount of built-in features that with some practice can allow you to explore areas and get in and out of places that you would not have tried without one. Like all modern devices, GPSs require batteries, so always check your unit is fully charged and carry spare batteries or a rechargeable power bank.

GPSs are an essential piece of equipment for all hunters and we encourage the use of the GPS's tracking function while hunting. New Zealand topographical maps come preloaded or can be purchased and installed on most handheld GPS units.



FIG. 17. Handheld GPS units - Image: Mike Ng

Sleeping Bags

Special care is needed in selecting a sleeping bag as you need warmth and comfort to get sufficient sleep for the exertions of the day.

Different sleeping bags are rated for specific temperatures, when purchasing one you need to consider this. A sleeping bag liner made from silk or polypropylene can increase the bag's temperature rating and prolong its life.

The most efficient shape for heat and weight saving is the "mummy" style, and the lightest most efficient filling is down, or down with feathers. Down has incredible loft, lightness and durability, goose down is considered the best, but is also the most expensive. Down must be kept dry because it is virtually useless when wet, more manufacturers are now treating down with a water repellent coating, allowing the down to retain some warmth even when wet.

Some sleeping bags have a synthetic filling, e.g., Holofil, Quallofil, Thermolite, Extreme, Polarguard, etc., which is heavier and bulkier than down, has a shorter life, and is harder to compress when packing a bag but retains some warmth if wet.

Sleeping Mats and Ground Sheets

Beneath the sleeping bag you will need at least a groundsheet and sleeping mat to insulate you from the cold ground. Types of sleeping mats range from basic closed-cell foam (CCF), to self-inflating sleeping mats such as Thermarest. Undoing the valve and rolling the pad up tightly deflates it, these pads have the advantage of providing better insulation and comfort than CCF. Inflatable mats are tough, light, and compact when deflated and provide the best insulation but can puncture.

Pillow and Headrest

A good night's sleep is important and most people use some form of pillow. You can roll up spare clothing or take along an inflatable pillow which are more popular and comfortable.



FIG. 18. Sleeping mats - Image, Mike Ng

Tips

- Keep your sleeping bag dry at all costs by carrying it in a sturdy waterproof bag. It is likely the stuff bag it comes in is NOT waterproof.
- To keep your sleeping bag as compact as possible it is worth buying a compression bag with straps that will enable you to compress it down. This will save a lot of space in your pack and enable you to protect it with a comparatively small waterproof bag. Ensure that you do not store your sleeping bag in a compression sack.
- When setting up camp ensure you remove your bag from the compression sack, so it has time to loft.
- Draw the draft collar and hood to stop heat escaping.
- Sleeping with your head inside your bag is not a good idea as it fills the bag with moisture.
- Never wear damp or wet clothes in your sleeping bag.
- Wear a hat to increase warmth. Avoid wearing all your clothes inside the sleeping bag as it condenses insulation layers required for warmth.
- Eat heartily before going to bed, as this will give your body lots of calories to burn.
- At home, dry your bag and store it unrolled to prolong its life.

Tents

Tents can extend your hunting range and allow you to access more remote areas, by camping away from huts and tracks. Often more experienced hunters tent because more remote areas offer a wilderness experience and greater chance of seeing game animals. This is because game animals avoid areas with high numbers of humans.

Choose a tent designed for wilderness camping rather than a more basic design meant for campsites. In general you may opt for a three season tent because New Zealand is known for having extreme weather at any time, so these are the minimum recommended for most hunting situations. A proven tent design for wind resistance is the tunnel tent supported by hoops of high tensile aluminium or carbon fibre pole sections.

Things to consider when choosing a tent are: how many people it will accommodate, if it will store your gear and rifle, and if you will be able to cook under cover when conditions are bad.

Tents are highly flammable and in a fire your synthetic clothing and tent will melt, sticking to your skin and causing serious burns. Never cook in a fully zipped tent to avoid carbon monoxide poisoning in the confined space or accidental fires. Do not underestimate this danger: carbon monoxide is colourless, odourless, and deadly.

Modern tents are safe, waterproof, and comfortable, even in extreme weather, as well as being light to carry. The lightest options are top of the line sleeping bag covers, bivvy sacks or bivvy bags and one person tents. The downside to using a lightweight model is they are not ideal in continuous bad weather and there is nowhere to store your gear.

For cold and wet conditions, a two layer system is the warmest option with an inner breathable material for the tent, waterproof material for the fly, and a heavier waterproof material for the floor. Such a tent can be used as just the breathable inner on a warm night. If it is showery, but still warm, you can use the fly alone.

A "footprint" liner or sleeping mat under the tent may help protect the floor from punctures and will help keep out the cold. It also increases the longevity of your tent.



FIG. 19. Having the right tent rated for the location is important - Image: Mike Ng

The most basic form of tenting is using only a fly, known as “fly camping”. Flys are sometimes referred to as tarps. You can use just a tent fly in all but the most violent weather and can use a fly for extra protection when strung over your main tent. The drawback is the amount of wind that can blow under a fly, so you need to pitch in the most sheltered spot you can find and secure the windward edge under a layer of rocks or heavy logs. An extra fly can be useful to provide shelter for equipment, meat and skins or to cook under.

Tip

Tents have zips, domes, and clips that all need to be looked after and cleaned, spraying with a waterproof silicone spray will help to prevent them seizing up, rusting or becoming brittle and breaking. Seam seal will protect them from leaking. In snow and ice, it is important to remove any of this spray as if it freezes it will expand and make that item either break or fail to work especially dome tents. Take the empty canisters out with you.

Cooking

Most people use modern cookers such as gas or liquid fuel stoves that make cooking quicker and are easier than building a safe fireplace and lighting a fire. There is no smoke to alarm game and your cooking pot stays mostly soot free so is easier to clean. There are fire bans at some times of the year, and as appreciation of conservation grows there is a general move away from burning forest wood.

Fuel for stoves ranges from: LPG, a mixture of butane and propane, to kerosene (also known as paraffin), white spirit, similar to petrol but without additives, and methylated spirits.

Small gas stoves with disposable gas containers are the lightest and easiest to use. These are the most common form of cooker used by hunters because they can be lit immediately without priming and provide a quiet, hot flame.

LPG does not perform as well as liquid fuels in very cold conditions or at high altitudes unless you keep the gas canister warm. White spirit stoves have fallen somewhat out of fashion except for in alpine conditions as LPG does not work as well at high altitude. Liquid fuel stoves are powerful, efficient and the fuel is much cheaper than gas but they need priming to start. Methylated spirit cookers were once commonly used.

Cooking pots and pans are commonly made from either stainless steel, aluminium or titanium. A pot should come with a lid, essential for retaining the heat and limiting cooking time, thus saving fuel. Pot and pan combos enable a greater variety of food to be cooked at one session without cleaning pots. Aluminium is lighter and cheaper than stainless steel and more efficient at transferring heat, titanium is lighter still but considerably more expensive.

To save space and weight you can use a single pot or mug that the stove and gas bottle fit into. Some weight-conscious hunters take only a big stainless-steel mug and use it for cooking, eating, and drinking. If the only cooking you intend to do is to boil water for adding to freeze-dried meals, you might consider the Jetboil or MSR range of personal cooking systems. These conveniently fit the stove, gas, and accessories inside the pot, but are more expensive.



FIG. 20. MSR Reactor stove system -
Image: Ampro



FIG. 21. Real Meals - Image: Ampro

Tips

- A popular option for hunters is to use a Jetboil or MSR integrated cooking system.
- When using gas canisters check that you have enough and always carry empty canisters out with you.
- Always carry a spare lighter as part of your kit.
- A wind guard can increase the efficiency of your stove.
- Always fill liquid stoves outside, using a funnel and well away from open flames. It is best to fill the tank before you set out and check carefully for leaks before packing.
- Stand the cooker on a stable, flat surface well away from synthetic clothing, tents and sleeping bags.
- Make sure you have the right fuel. There are some stoves that burn all kinds of liquid fuel, but make sure you know the capabilities of yours.
- Beware of carbon monoxide poisoning if cooking in a tent or vehicle. Keep the cooking area well ventilated.

Food

There are three main classes of food that are important to consider when hunting. All provide energy, but in different ways.

- Proteins are important for the repair of muscles and tissues. Sources of protein include meat, cheese, eggs, milk powder, nuts and grains. Proteins release a small amount of energy relatively slowly.
- Fats have the highest energy content per gram. Sources of fat include butter, bacon, cheese, salami, chocolate, full cream milk powder, nuts and grains. Fats are slowly digested and release their energy slowly.
- Carbohydrates are rapidly digested and provide energy almost instantly. Foods rich in carbohydrates include sugar, honey, bread, muesli, oatmeal, rice, pasta, sweets and dried fruits.

When you go for a strenuous hunt, your body uses up the glucose in your blood first and then draws on the glycogen stored in your liver and muscles. After the glycogen is used, you become more dependent on fat for energy, but this takes time to break down. Carbohydrates are high energy boosters but are quickly burnt up and then need replacing. With hard physical activity, it's important to have the right combination of these food types. Generally you should eat a combination of proteins, fats, and carbohydrates. However, if you are very active and conditions are cold or wet you should eat a higher proportion of fats.

It is important to drink lots of water, not only to keep hydrated but so that your body can convert stored food into energy. Even cold water can help you keep warm for this reason, but to boost this effect heat the water first. A 10 percent loss of body water can cause serious medical problems; a 20 percent loss can kill you. In addition to water you need salts in the form of electrolytes, to sweat and avoid cramps. If you are prone to cramping, it is worth carrying electrolytes and drinking a small amount whenever you stop.

Lack of water will lead to dehydration – so keep your water intake up. Be aware that in some areas there is a risk of giardia infection from unboiled stream water. There are effective filtering systems available or drops you can add before drinking. Another tip is to take the water from the

surface in the middle of a still, deep pool rather than from a fast-flowing section, as giardia organisms sink in still water.

Food that hunters take into the backcountry needs to be nutritious and lightweight so prepared dehydrated meals are very popular. For best results, these meals should have the required quantity of boiling water added then be sealed and left to stand for the period stated on the packet (typically 10 minutes). As cooking systems have developed, new ways of cooking meals have evolved and there are now products designed to be reheated in boiling water paired with a Jetboil or MSR system.

Instant soup packets are smaller and less expensive than freeze-dried meals and can be taken along to fill out breakfast or lunchtime snacks and provide more heat in the cold weather. Instant noodles and pasta meals are also available but provide little nutritional value. Powdered mashed potato and powdered eggs are useful dried foods. For making a stew dehydrated peas, onions and carrots are available.

Bread, wraps and precooked rice or crackers are an essential source of carbohydrate and may keep for up to a week. Most hunters will take packets of cheese, salami, or tuna as these also keep well for up to a week without refrigeration. Supermarkets now cater for small individual servings which are ideal for separating by day.

Cheese is high in protein and fat and can be added to soups or stews to enhance flavour and add nourishment. Bacon and salami are highly



FIG. 22 Go Native Ready to Eat Meal - Image: Go Native

concentrated long life foods but you should avoid the wet varieties sealed in plastic, which will not keep outside the refrigerator once opened.

Fresh fruit, vegetables, eggs, and tinned food are not generally taken because of their weight and difficulty of carrying without damage but fresh food makes the best meals and you may find it worth the effort to carry this extra weight.

For a good, quick breakfast many prefer muesli or porridge which are available in individual servings. You may like to create your own premix and include raisins, cranberries and milk powder.

Having a “brew-up” while out hunting can provide the opportunity for a much needed break, as well as help to keep you warm. In this situation, even if you don’t normally take sugar in tea or coffee you may find it helps gives you a boost. This is also a good time for a snack like scroggin, nuts, chocolate, muesli bars or dried fruit. Biltong and jerky are ready to eat dried meat products that also provide useful salt.

Tips

- Prepack your food by day so you take the correct quantity for the duration of your trip.
- Store your food overnight hanging up in a bag or lay it next to your head so you will be able to hear if something decides to raid your supplies.
- In cold weather, try using hot water to make your powdered fruit drink.
- A stainless steel or plastic pot scourer is good for cleaning cooking equipment and doesn’t rust. Any cleaning products should be gentle on the environment.
- Cramps are often due to dehydration rather than a lack of salt. Keep drinking plenty of water.
- To keep up your energy intake, snack throughout the day on sweets, muesli bars, nuts or scroggin. Eat even when you don’t feel hungry and have extra when tired or about to do some steep climbing.
- Disposable butane lighters are useful and don’t rattle. Waterproof matches are available, but ordinary matches work well unless seriously dampened. Having a butane lighter in your pocket at all times is an important hunting aid to show where the scent carrying wind is coming from.

Carrying Water

Carrying water is essential when hunting, but more important when hunting high alpine areas, dry ridges, or any place where you have doubts as to whether you will regularly come across drinking water such as streams or tarns. You cannot always believe what is indicated on the map, presence of water changes with the seasons and amount of rainfall. Don't leave finding water to chance: put a filled water bottle in your day pack and refill this regularly throughout the day as you come across a water source. Collapsible water containers such as a Platypus are useful, these are flexible and if no air is allowed in the bag have the advantage of not making a noise when partly empty. Bladder and hose hydration systems such as Camelbak have the advantage that you can sip water at any time without taking off your pack. Many a good hunting trip has turned into a trip hunting for water because it was not carried from the start.



FIG. 23. Hydration Options - Image: Mike Ng

Survival Kit

A survival kit should contain items useful in an emergency overnight situation to provide shelter, warmth and tools to assist in your rescue. The kit should be carried in your pack where it is easily accessible or on your hunting belt at all times. It cannot be stressed enough the importance of keeping your survival kit on your person at all times.

Your survival kit should contain at a minimum:

- Fire starters or strips of inner tube rubber for lighting fires
- Matches or lighter
- First-aid kit
- Torch
- Whistle
- Shelter system, bivvy, or survival bag
- Muesli bars or emergency food
- Signaling equipment (e.g., mirror)
- Small sharp backup pocketknife or multi tool
- 2 metres of paracord

Survival Bag

A survival kit shouldn't be accessed regularly and some items may be a duplicate to your main kit but it is important to know these are available when needed the most. Ideally all of this should be contained in a waterproof dry bag inside your survival bag.



FIG. 24. Typical hunter's Survival Kit - Image: Gwyn Thurlow



FIG. 25. Survival 'Bivvy' Bag in use - Image: Courtney Pellow by Mike Ng

Camera

Although not an essential piece of hunting gear, as a hunter you are going to see some incredibly scenic country. You will likely see some sights that few people but hunters have the opportunity to see and you might get to the point where carrying a good quality camera and taking photographs is more rewarding than shooting. Over time most hunters who are passionate about photography include a high-quality camera with telescopic lens as part of their equipment.

Communications

When doing extended backcountry trips many hunters hire a mountain radio for the duration of their trip. The portable transmitter/receiver is small enough to go in a day pack, but powerful enough to communicate from any part of the country. The mountain radio operator for your area will call you daily at a prearranged time to give you a weather forecast, record your position and pass on any messages. Cellphone coverage in the backcountry is becoming more accessible as networks expand their range but do not rely on this as a means of communication especially in remote areas. Satellite phones and modern InReach devices can be very useful, however again they do rely on satellite positioning which

can be affected by weather conditions and topography. Many parts of New Zealand are rugged, and satellites need a direct line of sight to operate properly so you cannot always be sure of message transmission. When doing extended trips most people use a combination of different communication devices.

A personal locator beacon (PLB) is an essential device for emergency situations and every hunter should carry one on them at all times. Some NZDA branches and sports shops hire these out for a nominal fee however the prices have come down significantly in recent years and PLBs are now affordable to own. A PLB is for emergency use only and indicates where you are and that you require emergency assistance, they are registered to you personally and the Rescue Coordination Centre will alert your nominees. Do not activate the PLB unless the situation is very serious: a flooded river delaying your return requiring an unexpected night out is not an emergency, but a broken leg is. PLBs link to a satellite system and those with inbuilt GPS can bring a quicker response than older models without it. PLBs have saved numerous people in our backcountry and are deemed essential to carry.

Some devices such as SPOT messenger or InReach, can also send non-emergency information and position updates via the internet using a texting system but come with an annual subscription charge on top of the purchase price. The Garmin products can also receive weather reports, which are helpful in the mountains for added safety. You cannot



FIG. 26. Personal Locator Beacons - Image: Mike Ng

rely solely on SPOT or InReach devices so you should always carry a PLB in addition to your satellite communication device.

Note: Some items such as cell phones, head torches, SAT phones, InReach and smart watches require charging via USB or similar connection. New lightweight solar chargers can do this and some battery power bank systems are light enough to carry with the knowledge that you can charge items if needed.

Tip

Your whistle can be blown all day long to alert someone looking for you, but you can't yell for help the same length of time as eventually your voice will get weaker and weaker.

Care for Your Equipment

Like all things, you spend your hard-earned dollars on buying equipment and over time all that hunting gear adds up to a large investment so it is important to look after your equipment. When you get home from a hunt, take the time to wash your hunting clothes, clean your boots and remove any soil, blood, or mud from them. If the base of your tent needs washing, don't put it away still damp, hang it up to dry as mold or mildew will destroy waterproof materials. Hang your sleeping bag up and open it out to air. Check all your other equipment and if anything needs cleaning, do it straight away - don't put it off until later. All your gear needs to be fully functional when hunting so to avoid gear failure, care and maintain your equipment regularly. Your rifle is an expensive item and needs to be maintained after every use. Clean it regularly. A well-maintained rifle will be safe, accurate and functional at the moment you need it. If it's been wet, take the time you need to remove the metal from the stock and get into the underside and dry any water in there. Dry and lightly oil it and do the same to your stock if need be. Carefully clean your scope and rings. Remember just because you have a 'stainless steel' rifle doesn't mean it won't rust. If you spend the time looking after your gear it will last you a long time and the investment will pay for itself.

New Technologies

New technologies related to hunting are constantly evolving and can improve your hunting experience. For example, new materials and designs of hunting clothing and equipment can help improve durability and performance in extreme conditions. Advances have also seen the development of new tools and equipment that many hunters would now not leave home without. Not all new technologies are ethical, and you need to consider if the technology you are using is ethical or even legal to use where you are hunting.

Drones

Drones are becoming a more widely used technology especially as they become cheaper to purchase. The use of thermal camera drones can scan an area to reveal a heat signature, indicating an animal is present without the need to walk. Drones can only be used in certain areas and there are restrictions on where you can fly and how far they can travel.

Thermal Optics

The use of thermal optics, whether as a rifle scope or handheld unit again have opened a new avenue in the hunting sector. Thermals work by locating the heat from the animal and have found their place as a pest control tool. Thermal optics cannot be used on DOC conservation land other than by DOC employees doing pest control.

Night Vision

Like thermal optics, night vision technology allows the hunter to be able to see at night through the use of highly sensitive optics that gather available light. They are a useful tool and can be used in certain applications such as pest control.

General Tips

- Instead of carrying a full map, photocopy or print off the area you are going to and carry inside a plastic bag or laminate.
- A piece of plastic insulation tape over the end of your rifle barrel will keep out twigs, water, snow, and other foreign matter.
- If you carry your smartphone with maps and/or GPS, ensure the battery is fully charged before you go out.
- Make sure you close any apps and put your phone on 'Airplane mode' as this will reduce battery loss.
- Always carry a printed map and compass as backup to navigation technology.
- Take a few airline baggage tags and a stub of pencil. Made of almost indestructible paper, these tags are perfect for leaving notes for friends or marking where you turned off the track. Pencil works on these tags even when wet. It can ruin your trip if you leave an essential item behind. Make a checklist of your gear and use it meticulously instead of discovering something missing when it is too late.
- Ensure you carry sunscreen for those hot sunny days but also when in the snow. An old pair of sunglasses can come in handy to avoid snow blindness and lip balm with sun protection is also useful.

Chapter 2: Equipment & Food

Ngā Taputapu me te Kai

Key Learning Outcomes:

- Prepare an equipment and food checklist for a weekend trip.
- Describe the things to look for when selecting the major gear items.
- Select suitable clothing and explain the benefits of preferred fabrics.
- Explain the principle of layering clothing.
- Describe the contents of a survival kit.
- Cook a meal in the field.
- Explain the dangers of using stoves in tents and confined spaces.
- Describe the main communication devices and their limitations.
- Assemble a basic personal first aid and survival kit.

Notes:

3 BACKCOUNTRY TRAVEL

Te Haerenga tū-ā-nuku

Travelling with confidence in the outdoors requires knowledge of hunting environments and skills to safely negotiate both anticipated and unanticipated terrain or hazards. It is equally important that hunters understand weather forecasting and have knowledge of New Zealand's weather patterns and indicators for fine or bad weather approaching.

Every hunter will at some point need to cross rivers to gain access into hunting areas. It is critical that you understand the principles of crossing rivers and have the skills to safely use appropriate river crossing methods. Good travel techniques will enable hunters to safely traverse on and off track in a variety of bush and alpine environments. This chapter will provide the necessary introductory information to help you prepare for travel in the outdoors.

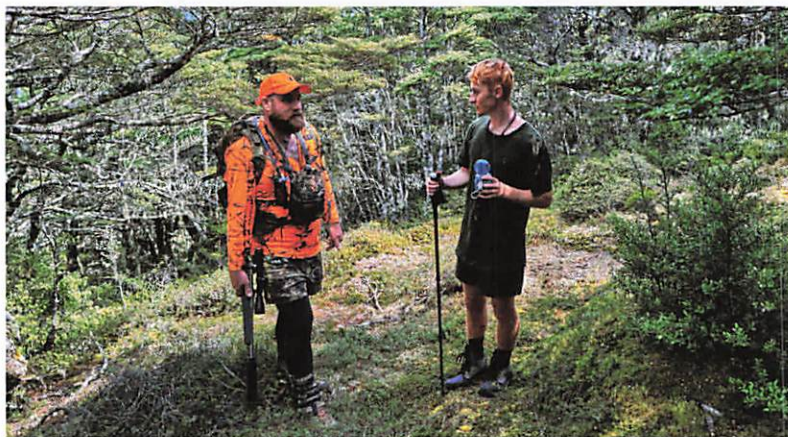


FIG. 27. Travelling in the backcountry - Image: Mike Ng

Considerations for planning a hunting trip include:

- planning ahead, especially if going into new and unfamiliar country.
- planning a trip and route that is within your capability with respect to your level of fitness and experience.
- studying maps to determine the lay of the land, potential hazards, entry and exit points.
- memorising major landmarks while travelling and planning to avoid difficult terrain.
- talking to others who have been in the hunting area recently and may tell you about current track conditions or where animal sign was seen.
- locating areas where game might be found (e.g., north facing slopes), and pre-planning an approach route based on terrain and the general wind direction from weather forecasting.
- finding good river crossing points that may influence your route selection when travelling in untracked country. Remember that the river course marked on the map may change over time.
- checking the weather forecast before leaving.
- carrying a device, e.g. smartphone app, radio, or InReach to access updated weather forecasts.
- leaving your trip intentions with a responsible person.
If you have the opportunity at a hut or logbook station, also enter your intentions at these points.

See Chapter 9: Outdoor Emergencies & Survival.

The Mountain Safety Council Intentions Form can be found as Appendix 4.

A digital Outdoor Intentions Form can be found at this link:
www.adventuresmart.nz/outdoor-intentions-form

Preparation

It is important to have a reasonable level of fitness for hunting. Having a good level of fitness will mean you can get into areas where more physical effort is required, and the hunting may be more productive. Improving your fitness will increase your enjoyment and success in hunting.

Walking and hill climbing can help maintain your fitness, wearing your hunting boots when doing so can help condition your feet at the same time. Carrying a weighted pack every second evening after work or walking a few local tracks for an hour or two on the weekend are good ways of improving fitness, strength, and overall health.

Plan your trip within your physical and mental capability so that when travelling in the backcountry you do not become exhausted. If hunting in a group, consider the fitness level of all members.

Weather

Influences on New Zealand's weather

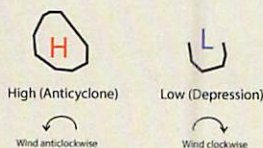
Our weather is predominantly influenced by our latitude, the prevailing westerly systems, our mountains, and the Tasman Sea. New Zealand is narrow, mountainous and is surrounded by warm ocean currents sitting at mid southerly latitudes. New Zealand can experience both hail and snow from southerlies coming up from Antarctica, or wet, hot and humid days from northerlies originating in the tropics. Prevailing westerly air masses dominate New Zealand's weather. Most of our new weather systems arrive every 6 days or so.

How to Read Weather Maps

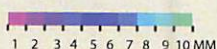
New Zealand's weather is dominated by the flow of high and low pressure systems as they move across the country from west to east. Fine weather is usually associated with a high, while poorer weather is associated with a low.

WEATHER MAP LEGEND

PRESSURE SYSTEMS

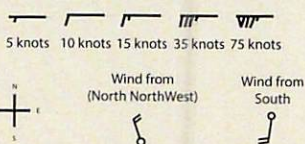


RAINFALL (MM)



WINDBARBS

Barbed end indicates where the wind is coming from

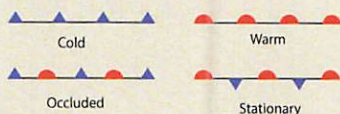


ISOBARS

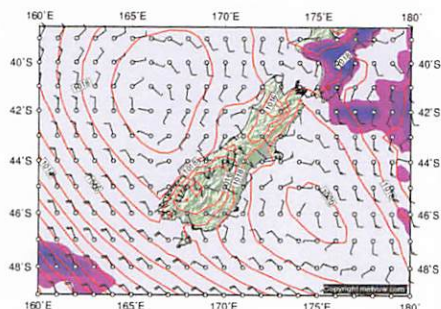
Red or black lines crossing map



FRONTS

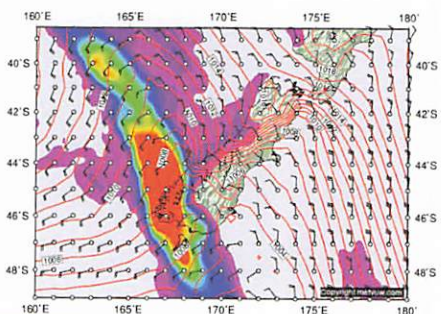


METVUW MAPS



Plotted by James McGregor

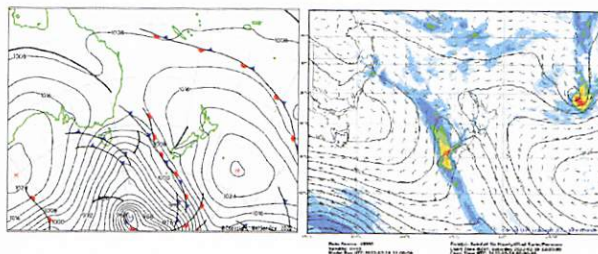
Example of a "Tasman High" weather system.



Plotted by James McGregor

East Coast sheltered by Southern Alps.

METSERVICE MAPS



Surface pressure map

Rainfall map

FIG. 28. Interpreting MetVuw and MetService digital maps - Diagram: Erin Hewetson

Isobars

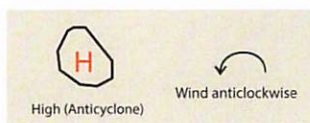
The numbered lines on a weather map are called isobars which join places where the air pressure is the same. The numbers indicate barometric pressure measured in hectoPascals (hPa). Isobars are drawn at regular intervals of 4 hPa. Where isobars are close together winds will be strong and where they are far apart winds will be lighter. As a general rule, if there are five or more isobars crossing New Zealand expect a strong breeze to gale strength winds. Expect calmer winds as the number of isobars decrease toward zero.



Some weather maps, for example those shown in MetVuw, will display wind barbs that indicate the direction and strength of wind on the map location.

A High or Anticyclone

A high-pressure system on a weather map is marked with an 'H' and is associated with calm, fine weather. The air moves in an anticlockwise direction within an anticyclone, remember; anticyclone is anticlockwise.



High pressure systems are associated with sinking air, as the air sinks it compresses and warms causing clouds to evaporate and produce fine weather.

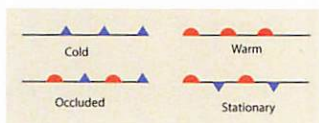
A Low or Depression

A low pressure system on a weather map is marked with an 'L' and is associated with poor weather. The air flows in a clockwise direction within a depression. Low pressure systems are associated with rising air which expands and cools producing cloud and rain. There can be areas of fine weather near lows because of the sheltering effect of New Zealand's mountains.



Fronts

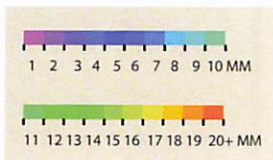
Lines marked with black triangles or halfmoon shapes on the isobars are called fronts. Cold fronts, which are marked with black triangles, are associated with cold air replacing warmer air and are likely to bring cooler, stormy conditions. Warm fronts are marked with black halfmoon shapes and are associated with warm air replacing colder air to produce warmer conditions or light rain.



Occluded fronts and stationary fronts represent more complex weather scenarios. Occluded fronts are represented by triangles and halfmoon shapes side by side and facing the same way. Stationary fronts are represented by triangles and halfmoon shapes on opposite sides where the front slows down or stops.

Rain

Rain can be predicted if the weather map shows a low pressure or front approaching, or if the wind is blowing at strength from sea onto land.



A dominant type of rain is orographic, where moist air from a depression blows into the mountains and the air is forced to rise, cool, and condense which results in rainfall. Once the air has crossed the mountains it will sink back toward the sea as warm, dry air.

Observing Weather

It is important to keep an eye on the weather which can be challenging when hunting in the bush. Interpreting changes in wind direction, strength, and cloud patterns can help predict changing weather and allow you to alter your trip plan accordingly.

Wind is affected by local land formation and it may be quite different from the general wind flow associated with the pressure system. You can get some idea of the strength and direction of general wind flow by observing cloud movement.

Cloud formations can be indicative of approaching weather. Wispy cirrus

clouds which look like mares' tails indicate strong high level winds and are often the first sign of an approaching front and bad weather. "Hogs backs" or smooth, lens shaped lenticular clouds are associated with strong winds at mountain level. As bad weather approaches, they usually become bigger. Fluffy towering shapes in a blue sky known as cumulus clouds indicate a settled period.

The gradual thickening and lowering of the cloud base indicates worsening weather.

Preparing for Bad Weather

New Zealand's weather can change quickly and dramatically at any time of year. Be prepared for this even if the long-range forecast indicates fine weather, especially when you are in the mountains.

Bad weather may require you to change your trip plan and consider alternative camping sites and exit points. Make a contingency plan before you leave. Remember that current and long-range weather forecasts can be heard on the Mountain Radio each evening, or from some satellite communicators like Garmin InReach devices.

With very poor weather forecasts, consider postponing your trip until the weather improves.

Where Can I Source Weather Information?

Internet: There are a range of websites offering local, regional, national and mountain weather forecasts. Commonly used websites include www.metservice.co.nz and www.metvuw.co.nz.

Smartphone Applications: There are a range of apps that give weather updates. Common smartphone apps include [Windy](#), [Yr](#) and [MetService](#).

Television: The weather is repeated regularly on TV, generally after the news and is a source for current and long-range forecasts including weather warnings.

Newspapers: Most newspapers have daily weather information and forecasts including a weather map and long-range forecasting.

New Zealand Cloud Types

metservice.com

Cirrus

made up of ice crystals forming wispy clouds, sometimes called mare's tails

High Clouds

Above 6,000m (20,000ft)

Middle Clouds

Between 2,000m (6,500ft) & 6,000m (20,000ft)

Cumulonimbus

causes thunderstorms, heavy rain and hail

Altostratus Lenticularis

a stationary cloud which often resembles stacked lenses or saucers

Towering Cumulus

is the smaller sibling of cumulonimbus

Low Clouds

Below 2,000m (6,500ft)

Cumulus Humilis

is also called fair weather cumulus, clear or sunny between these clouds

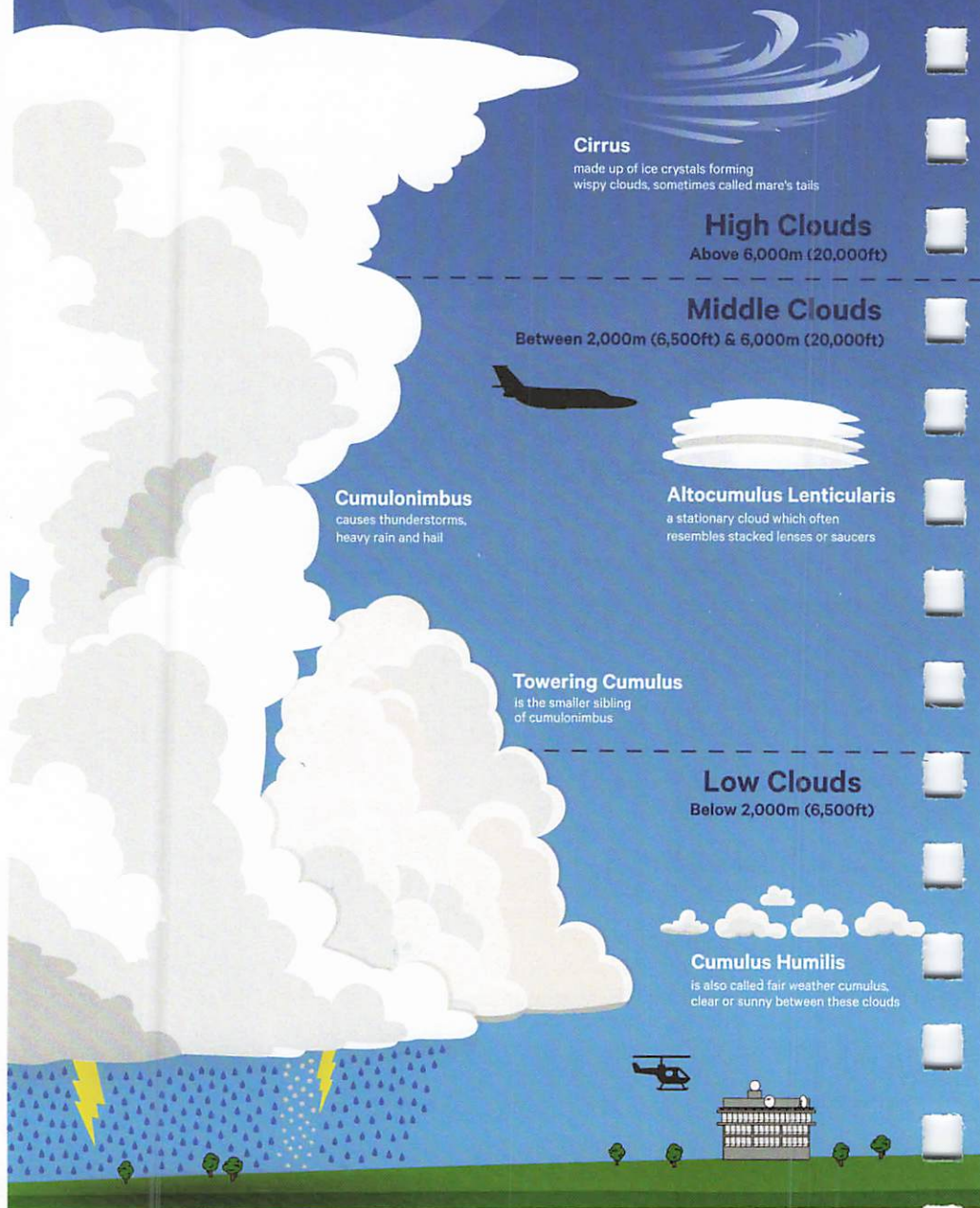
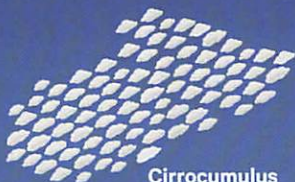


FIG. 29. New Zealand Cloud Types - Image: MetService

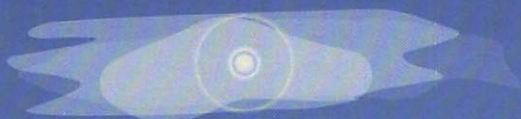


MetService
TE RATONGA TIORANGI



Cirrocumulus

ice crystals arranged
into cellular structure



Cirrostratus

A thin veil of ice crystals, when the sun shines
through it can display solar halos



Altocumulus

like altostratus,
but has a cellular structure



Altostratus

usually develops following
cirrostratus, as a front approaches

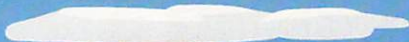
Nimbostratus

is associated with frontal
systems and prolonged rain
or snow when cold enough



Stratocumulus

is a flat layer of shallow cumulus
cells – very common in New Zealand



Stratus

cloud that forms very close
to the ground, often after rain



Considerations for Backcountry Travel

When travelling in the backcountry be aware of the ongoing need to plan your route and to know where you are at all times. Locational awareness is important, this means always knowing where you are on your map and in relation to natural features. There are many options for backcountry travel including marked tracks, riverbeds, game trails and offtrack travel using a map and compass. Look back frequently so you get a picture of the country from the other direction, this will help for your return journey.

Marked Tracks

Tracks on public land are marked with orange plastic triangles, orange is DOC's official track colour and they point in the direction that the track goes. In alpine country, track markers are poles with plastic orange ends to be visible above the snow.

When travelling on a marked track, be aware:

- If you fail to see any markers for a while, stop and retrace your steps to the last marker you saw, making sure that you are not going astray. Sometimes this happens when an old track or game trail continues after a bend on the marked track leading you off the route.
- Tracks are not always exactly where they are marked on maps. Talk to others who have recently been over the route to learn about track conditions.
- When you cross a river, slip or clearing the track may not start again directly where you began crossing and you may need to search up and down a short distance to pick up the markers again.
- DOC bait or trap lines are often marked with yellow, blue, or pink markers.

You may come across tracks marked with the old system of one or two permolat slats coloured white, or red on white, which if followed may lead you on to a now unrecognized route.

Offtrack

When hunting you will most likely be travelling offtrack, so you need to develop skills for moving through untracked country. Study the map before setting out, planning your route with consideration for river crossings and access via creeks, spurs, ridges and benches that will provide the best route to your hunting area.

Ridges and Spurs

When descending a spur, be aware that it is easy to go off course. The lay of the land will tend to drag you into side gullies and creeks. It may be useful to mark your uphill route so that you can pick it up again or use a compass to help maintain your direction of travel along the main direction of the spur. The use of your GPS tracking mode is very useful in this situation.

When hunting, don't descend where the ground ahead appears to get steeper and where you are unable to see all the way down as you are likely to end up stuck on a bluff. Avoid descending into river headwaters or gorge country, which is likely to be difficult. Choose a spur that offers a straightforward route down and keep on it until you reach the valley floor.

Following a River

Be careful when following a river or stream as often they can become gorges with deep pools, waterfalls and steep sided rock walls which may mean you will be unable to proceed or climb out. Narrow rivers or streams are prone to being log jammed with debris from storms, making travel challenging.

Route Marking

Marking your travel can be helpful if you intend to return along the same route by bending back fern fronds and using branches as arrows or poles. In alpine country you can build stone cairns or tie a knot in tussock. Toilet paper, and track marking or reflective tape can also be useful for marking your route. You can use your GPS to track your route of travel or mark waypoints in advance.



FIG. 30. DOC's official orange track markings - Image: Source unknown



FIG. 31. Track marking, rock cairn - Image: Source unknown

Game Trails

Game trails can be useful as they follow the easiest possible path for the animal to take, creating a safer and easier route for us to travel. Game trails seen from a distance can help in selecting a safe route.

Alpine Travel

It is important that you gain training for travel in alpine environments, especially for winter conditions where you will encounter scree slopes, snow and ice, avalanche prone areas, boulder debris, and alpine vegetation. A high level of fitness is necessary when travelling in alpine environments. You can learn essential skills by going with experienced alpine hunters.

You need to take special care if cloud or mist descends on you in open country, and especially if it begins to snow heavily. If uncertain about finding your route you may need to choose a sheltered spot and wait for the mist to lift or even camp for the night. Again, be sure to mark your route so that you can retrace your steps if necessary but bear in mind

that if further snow falls you will not be able to find your old footprints, cairns, or knotted tussocks.

It is important to have the appropriate equipment for alpine travel, this could include sturdier boots, crampons, ice axes or ropes.

Selecting A Campsite

If you are camping out when hunting, select a campsite close to your hunting area that is safe and sheltered from weather and flooding.

The main considerations for selecting a campsite are:

1. Wind

Make sure you camp downwind of your hunting area so your scent does not alert the animals in your area.

Shelter from the wind is also important to stay warm, especially in the winter. Before setting up camp it is important to determine the wind direction and find shelter by identifying natural features such as rock outcrops, the lee of ridges, or heavy vegetation. You may need to relocate your campsite when there are significant wind changes.

2. Water

Avoid areas that look prone to flooding or runoff in heavy rain (e.g. a hollow or dip in the ground). Avoid camping on soft, deep moss as this often indicates a wet area. Look for evidence of flood debris as this will show the high flood line and be aware of this if rain is forecasted.

You also need to be reasonably close to freshwater for drinking, cooking, and washing. Ensure any water source is clean or sterilize/filter it if you are unsure.

3. Wood

Hunters generally use gas stoves for cooking instead of open fires. Many public land hunting areas have fire bans however if you decide to use a fire for cooking or warmth, ensure it is well contained and there is a supply of suitable wood in the area.

The best place to find dry wood is dead branches that have fallen and are hanging in trees, or on open rocky ground if camping near a river. This wood will be wind dried and less likely to be as wet or damp as wood found on the ground. Only use dead wood, never cut live standing trees or shrubs as these will not burn.

4. Widow Makers

Falling branches and epiphytes can cause injury so it is essential to look high and low for dangers, especially in windy conditions. Pick a campsite away from dead or rotting trees or any that are leaning towards your campsite.

5. Wildlife

There are no predatory animals in New Zealand. However, be aware of wasp nests, have a good look around for wasp activity especially in beech forests and be prepared to relocate if there are nests nearby. Your most common interaction with wildlife in the bush will be with possums, mice, or rats trying to access your food or rubbish, so store this securely overnight.

Do not camp directly on a game trail as this could be in use by the animals you are hunting.

6. Rockfall/Avalanche

Rockfalls can be a hazard if camping in steep, rocky, or alpine country. In very cold areas, the freeze/thaw cycle can cause rocks to split off and fall. Look for evidence of past rockfalls such as large boulders against trees or a clear pathway up the hill where rocks have come down. Avoid these areas when selecting a campsite.

It is important that if you are hunting in areas where there is snow and ice, that you have received the appropriate training for these conditions. If hunting in the mountains and before selecting your campsite, look for evidence of previous debris which may indicate an avalanche prone area. Be particularly vigilant during spring as winter ice and snow start to melt.



FIG. 32. Selecting a good campsite is important - Image: Tom McCowan

Rivers

Rivers are one of our greatest hazards in the outdoors.

This section provides detailed information on river dynamics and the principles of river safety, river crossing and recovery methods. Along with this information, it is also important that you receive practical training on a river safety course.

Learning to cross rivers safely is one of the most important skills for any outdoor travel and it is equally important to know when NOT to cross a river. The first and most important lesson is never to risk your life crossing a river that is too deep, too swift, or in flood. Be aware of when your desire to get home overrides good decision making.

Planning for river crossings is an essential part of your preparation. Study your map before your trip and look for widespread contour lines indicating wide sections of the river and safe crossing points. Rivers can rise to dangerous levels very quickly, when planning your trip always consider a contingency plan should you be unable to cross.

Decision Making When Crossing Rivers

Do we need to cross?

- Decide if you need to cross the river at all.
- Check the map, looking up and downstream for alternative crossings like bridges or wires.
- Assess all hazards including the strength of the current, depth of the water, rapids, and obstacles. Never underestimate the power of fast-moving water.
- If you are with others, decide if all group members are capable of crossing. Communicate with them making sure everyone is a part of the decision making.
- Decide whether the river is safe to cross.
- If you decide crossing is unsafe, consider other options such as waiting for the river to drop or choosing an alternative route. Waiting is often a sensible choice as rivers in New Zealand generally rise and drop quickly.

Where to cross?

- Entry, exit, and retreat points need to be identified. Choose points where you can enter and leave the river safely. Plan for a place to retreat if you need to back out of the crossing, this may be downstream of your entry point. Never select a retreat route that leads into danger, instead look for another crossing place.
- Identify hazards such as mud, snags, boulders and standing waves. Don't cross upstream from these.
- The current is faster, and water is deeper on the outside of a bend so try to cross where the river is wide and straight. The ideal crossing place has a smooth gravel bed and slow-moving, smooth water.
- If the current is faster than a normal walking pace, then it is potentially dangerous. Throw a stick into the water to judge the speed of the current.



FIG. 33. Where do we cross? - Image: Gwyn Thurlow

- Beware of crossing a river where the depth is above your thigh unless the current is only slight. Remember that as you go deeper your buoyancy means you will have less stability.
- Beware of silty areas where quicksand can be encountered.
- Be mindful that rocks can be slippery with algae when deciding where to cross.
- Look out for standing waves, which mark the fastest flowing part of the river.
- Be wary of dirty water which hides obstacles and makes it difficult to gauge the depth.

Preparing to cross

- The contents of your pack should be inside a waterproof pack liner or dry bag.
- Check that your clothing will make the crossing comfortable and safe. Remove loose-fitting clothing that will increase drag, such as your raincoat or over trousers. It is particularly important to remove your raincoat as the pockets may fill up with water and the bottom may ride

up, hindering the quick release of your waist belt.

- Unfasten the chest strap and loosen the shoulder straps a little so you can get the pack off more easily if you need to. But keep the waist belt done up as this will help keep your pack from riding up if you fall in the water.
- Never cross barefoot. Wear closed footwear to protect your feet and make your footing more secure, this is far more important than keeping your feet dry.
- Ensure that all party members know the planned entry, exit and retreat points.
- When crossing a river with a firearm, consider the best way to carry it. It may be okay to carry in your hand or it could be better strapped to the side of your pack, depending on the difficulty of crossing. Always check that your firearm is not loaded before you cross.

How to cross

Two recognised river crossing methods are mutual support and solo crossing using a pole.

The mutual support method is recommended, especially for a party with different levels of ability as it provides group support if anyone loses their footing during a crossing.

Many river crossings can safely be made individually. It all depends on conditions and the confidence and experience of your party members.

Solo crossing

If you decide the solo method using a pole is the safest way to cross, consider the following:

- You'll need a pole about two metres long that is strong enough to support your weight. It will act as a tripod with your feet and create additional footing for better stability.
- Hold the pole in both hands diagonally across the front of your body. Push it into the riverbed about a metre upstream from your feet. Keep your body side on to the current to reduce drag.

- Lean on the pole for balance as you shuffle each foot forward. When both feet are securely placed, move the pole forward, push it into the riverbed and move your feet again one at a time.
- Move the pole through the water, not over it. Always keep two points firm while you move the third forward.
- The rifle is best carried by being strapped vertically to the pack (side or front panel) so the arms are free. If no pack is carried or the rifle cannot be secured, then the rifle is best slung over the downstream shoulder only and not diagonally across the back so that it can be jettisoned quickly if the hunter gets into trouble and needs to swim.
- A river safety course will allow you to practice this method.



FIG. 34. Solo river crossing - Image: Roger Brash

Mutual support crossing

Two or more people can support each other when crossing in case one loses their footing. There are two common methods, grasping the pack straps or the clothing.

- Position a strong person upstream to break the force of the water.



FIG. 35. River crossing instruction - Image: Upper Clutha HUNTS Course

- If more than two people are crossing, position another strong person at the downstream end.
- The person upstream coordinates the movement of the group.

Clothing grasp: this is good for straightforward crossings of knee to thigh deep water, where the current is not very strong or where packs are not worn.

- Party members put their arms behind each other's back and grasp the other person's hunting belt or clothing on the opposite side at hip level.
- Each person shuffles their feet independently of the others (do not walk in step) to maintain their own balance.
- If one member of the group loses their footing, the other party members retain their grip on the others to provide support until the member regains their footing.

Pack straps grasp: This is similar to the clothing grasp method but provides a more secure grip when packs are worn.

- Everyone should undo their chest straps and loosen shoulder straps.
- Ensure you leave your waist strap fastened.

- Each person can then reach around the back of their neighbour (between the back and the pack), grasping the hip belt or shoulder strap on the opposite side at hip level.
- In a group situation, rifles are best strapped vertically to the pack so the arms are free to provide mutual support.

With mutual support methods it is the strength of the group that gets you across. You must keep hold of your neighbours and continue as a group even if everyone loses contact with the bottom.

If the group loses its footing, then try to keep everyone together as long as possible. The outside party members use their free arm to backstroke and steer the group to the bank while all members bicycle kick for propulsion. The group should keep together until control and firm ground is regained.

In such a case you will see how important it is to keep the hip belt done up as it stops the pack from riding up and pushing your head under.

Retreating

You may find that once you have partway crossed the river it is too deep or fast to continue and the safest option is to retreat. Consider retreating well before you get into an unsafe situation.

If you need to retreat when solo crossing using a pole, switch hands and turn yourself around without removing the pole from the water, so that it remains upstream.

If retreating as a mutual support group, then all members should retain their position and maintain grip on their neighbour's clothing or pack straps. The upstream person should give direction to the group on how the retreat will proceed and maintain communication throughout. Retreat by walking backwards, taking extra care where you place your feet and not letting go until in the shallows.

Alternatively, you can perform the "caterpillar turn" whereby the downstream person remains as an anchor, and the group turns one by

one beginning with the upstream person until all group members have turned around completely to retreat to the riverbank.

Recovery

There is always the possibility of yourself or group members losing their footing and falling. This is why you always select an emergency exit point in advance.

If you or your group are being swept downstream, the pack becomes your life jacket. Lean back onto your pack so that it supports your weight, row with your arms and 'bicycle' with your legs to propel yourself to the exit point. You can do this by facing either downstream or upstream. If you are facing downstream, use your feet to fend yourself off any obstacles. If you are facing upstream, your pack can protect you against obstacles.

Be aware that recovery has inherent risk so attempt to select a safe river crossing where recovery shouldn't be necessary.

You should only remove your pack if it compromises your safety. If you remove your pack, try to keep an arm through one shoulder strap so you don't lose it entirely. Use your pack as a float and swim with your arms and legs.

After the Crossing

After crossing a river you may feel chilled resulting in poor coordination, stumbling and cramps. You could experience the onset of hypothermia after long or multiple crossings.

After a river crossing may be a good time to have a rest. Have a hot drink and change into dry clothes or find shelter out of the wind to warm up.

It is important to monitor your own and your group members condition when crossing rivers in cold environments.

River Crossing Tips:

- You may choose to change into footwear other than your boots when crossing a river and to keep your boots dry.
- Rivers can drop quickly after the rain stops, but until you are sure it is safe, it is important not to attempt crossing the river. Mark the water level with a stick to gauge the rate it recedes and check this regularly.
- When travelling along a river, check the conditions and look for potential crossing points or alternative land routes.
- Be extra careful in discoloured or glacial streams which can obscure obstacles and depth.
- It may be best to wear shorts if you expect to make repeated river crossings during the day.
- If bad weather is coming, make sure you camp on the side which you want to travel the next day or you could wake to find your route cut off.
- Never tie rope onto a person as a recovery aid. There are too many risks such as snagging, being pulled into the river or under the water and becoming entangled.

Chapter 3: Backcountry Travel

Te Haerenga tū-ā-nuku

Key Learning Outcomes:

- Learn about New Zealand's weather
- Know where to source weather information
- Learn to read and interpret a weather map
- Obtain a forecast including long-range before you head into the hills
- Observe weather regularly when you are in the hills
- Plan and prepare for bad weather
- List the main things to consider when planning a hunting trip.
- Select a safe campsite and set up shelter.
- Demonstrate basic understanding of river dynamics and hazards.
- Demonstrate competence in solo, group and recovery methods for river crossing.

Notes:

4 NAVIGATION

Te Ārahitanga tū-ā-nuku

Hunting in New Zealand's bush and alpine environments requires a hunter to learn and practice the skills to navigate with proficiency in the outdoors. Map reading and compass skills are essential for any hunter as they allow you to access remote and untracked areas competently.

Many hunters now tend to use a Global Positioning System (GPS) as their primary navigating tool. Whilst a GPS is a useful tool and important to carry, it is wise not to rely solely on it but rather learn how to navigate by reading a map and using a compass. By reading this chapter you will learn the principles and theory for navigating in the outdoors with a map, compass, and GPS. Navigating skills cannot be learnt simply by reading this chapter and will require you to take



FIG. 36. Backcountry Navigation - Image: Mike Ng

your knowledge of navigation into the field to practice these skills and become confident.

Looking at features on a map and identifying the same features on the ground is the key to map reading. Learning to read or interpret a topographical map with confidence will ultimately enable you to identify where you are, allow for you to plan a route from your map, and identify where you want to return to. This skill develops with practice and experience.

Often hunters will stick close to the hut or camp to stay in areas they are familiar with where there is minimal chance of becoming confused or lost and there is a reluctance to move away from their comfort zone. Learning to read a map will enable you to navigate, explore further, and find more productive hunting areas.

New Zealand's Map Datum

Mapping coordinate systems are based on a map datum which is a mathematical surface that best fits the shape of the earth. New Zealand's map datum is called New Zealand Geodetic Datum 2000 (NZGD2000). NZGD2000 was introduced in the year 2000 and replaced the previous datum NZGD1949. If your GPS doesn't have the option for NZGD2000 you can instead use the World Geodetic System which is WGS84. NZGD2000 and WGS84 have a difference of less than one metre on the ground, and therefore for most practical purposes are the same.

The Topographical Map

The NZMS 260 series topographical (or 'topo') map is an exact representation of the ground. What is seen on the map is seen on the ground. The topo map shows natural features such as hills, high points, rivers, and vegetation types as well as manmade features like huts and swing bridges.

The scale of the map is 1:50,000. This means that 1 unit on the map is 50,000 units on the ground, i.e., 1 centimetre on the map represents 500 metres on the ground.



FIG. 37. Satellite view - Image: DOC Maps

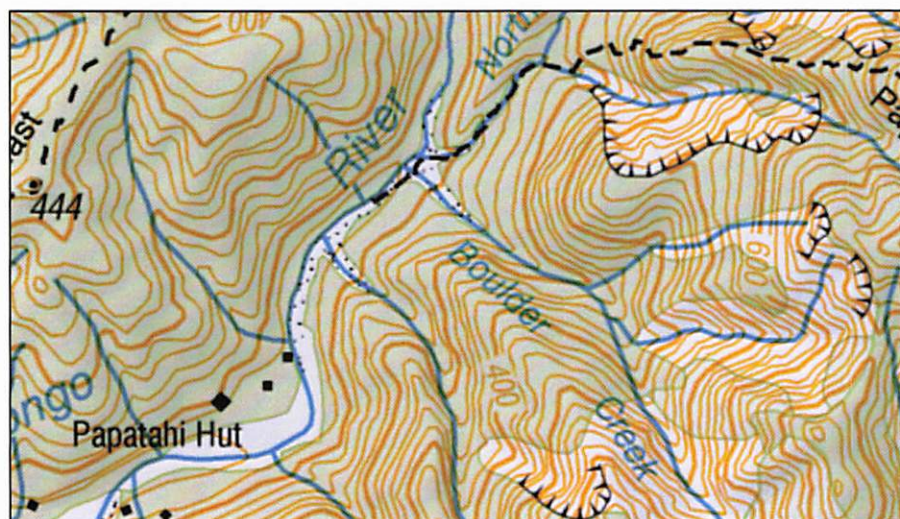


FIG. 38. Topographic view - Image: DOC Maps

ROADS AND TRACKS¹

State highway	
Four lanes or more	
Two lanes (includes passing lanes)	
Narrow road	
Vehicle track	
Foot track	
Closed track (see warning note below) ²	
Poled route, track connector	
sealed	
metalled	
unmetalled	
Tunnel, tunnel under road	
Bridge: two lane, one lane	
Ford	
Gate, locked gate, cattlestop	
Footbridge, cableway, walkwire ³	

RAILWAYS

Double or multiple track	
Single track	
Railway station, yard or siding	
Bridge, tunnel	
Level crossing	
Road over railway	
Railway over road	
Tramway or bush railway	

MISCELLANEOUS

Residential area	
Large buildings	
Isolated building	
Homestead, stockyard	
Glasshouse or greenhouse	
Church, cemetery, grave	
Training track	
Golf course, helipad	
Historic Māori pā, redoubt, monument, plaque or signpost	
Reservoir covered, reservoir uncovered, tank	
Mast, tower, wind machine or wind turbine	
Shipwreck, lighthouse, beacon	
Fence (selection only)	
Pipeline above ground	
Pipeline underground	
Disused water race	
Power line on pylons (actual positions) ³	
Power line on poles (away from roads) ³	
Telephone line (away from roads) ³	
Industrial cableway	
Mine: underground, opencast	
Buried gas pipeline	

RELIEF FEATURES⁴

Index contour	
Intermediate contours	
Perennial snow and ice contours	
Supplementary contour	
Depression contours	
Shallow depression, small depression or shaft	
Beaconed trig station (with trig identification code)	
Elevation in metres	
Cliff, terrace, slip	
Rock outcrops	
Stopbank, cutting	
Embankment or causeway	
Saddle, cave	
Alpine features	
Moraine	
Moraine wall	
Scree	

WATER FEATURES

Coastal rocks	
Shoal or reef	
Sand and mud	
Sand	
Shingle	
Swamp	
Boat ramp	
Breakwater, wharf, jetty	
Slipway	
Marine farm, seawall	
Dam, floodgate, weir	
Waterfall, rapids	
Cold spring, hot spring	
Fumarole, geothermal bore	
Watercourse, drain	
Canal: large, small	
Stream disappearing into ground	

VEGETATION FEATURES

Native forest	
Exotic coniferous forest	
Exotic non-coniferous forest	
Scrub	
Scattered scrub	
Shelter belt	
Trees	
Orchard or vineyard or plantation	
Mangroves	

IMPORTANT INFORMATION:

- Representation on this map of a road or track does not necessarily indicate public right of access.
- Closed tracks or routes on this map are defined as being no longer maintained or passable and should not be used by recreationalists. The Department of Conservation or other authorities should be contacted for the latest information on tracks and huts.
- Not all aerial wires, cableways and obstructions that could be hazardous to aircraft are shown on this map.
- Contours and spot elevations in forest and snow areas may be less accurate.

FIG. 39. Topographic Map Legend - Reference: <https://data.linz.govt.nz/document/11004-topo50-legend/>

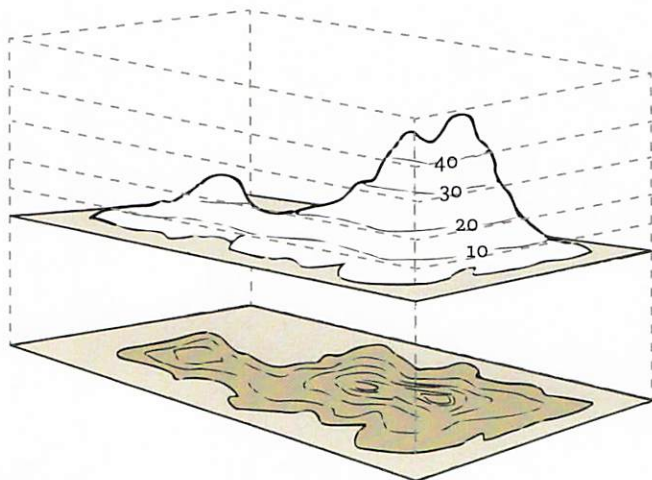


FIG. 40. Map contour lines and three dimensional 'real life' view

On the border of the physical topo map there is information such as the name, date, reference number, legend and details of the magnetic variation. Magnetic variation will be explained in detail further on in the chapter. Knowing the date your map was produced is important as some features may change, for example huts may no longer be there, vegetation can be felled, and marked tracks may become overgrown.

The topo map has features that make it appear 3 dimensional. It has contour lines that show height with the distance between each contour line being 20 metres in height. The map also has relief shading which appears as a shadow on the southeast faces. Darker shading indicates steeper terrain and lighter shading indicates terrain that is more flat. The combination of shading and contour lines, known as 'relief', help you to see a 3-dimensional layout of the land.

Grid Lines and Grid References

The grid lines on a map run south to north (called 'eastings') and west to east (called 'northings'). On the edge of your map each northing and easting line is numbered, enabling you to identify a point on the map as a grid reference.

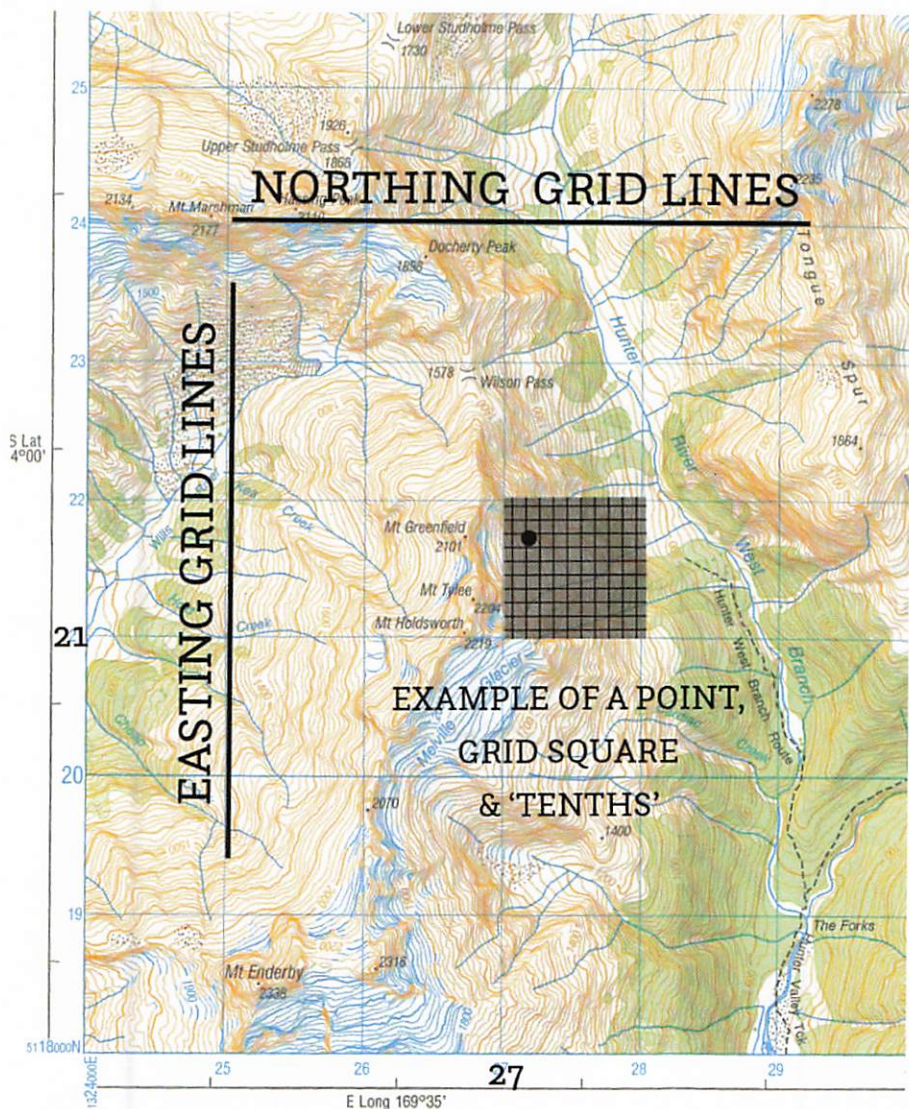


FIG. 41. Indicating terminology used when reading topographic maps.
Grid reference - 272217 - Diagram: Erin Hewetson

To find a grid reference for a point on the map:

- Identify the grid square that your point is in.
- Read the two-figure easting value of the grid square, and estimate how many tenths your point is from the easting grid line toward the east. This will give you the first three numbers of your grid reference.
- Do the same with the northing grid line. Read the two-figure value then estimate how many tenths toward the north.
- These three northing figures go after your easting figures and together will give you a six-figure grid reference.

Remember to read eastings across the map first and then the northings up the map second. A simple way to remember this is “walk before you climb”. It is helpful to know how to read a grid reference should you need to communicate your location to emergency services.

Navigating by Reading a Map

Reading a topographical map enables you to see features on the map and then identify corresponding features on the ground or vice versa. These features may include stream junctions, a steep face, a bend in the river, a high point or change in vegetation type.

Navigating with a map involves recognizing features on the ground and following them on the map or alternatively identifying features on the map and following them on the ground. If you see features on the map you should expect to see them on the ground as you move forward.

Navigating with a map requires you to plan your route. The easiest route is not always the shortest distance. Walking in a straight line can be difficult and will more than likely increase the time taken to travel.

It is best to plan your route by following what are known as ‘handrails’. Handrails are features that can be easily followed. On a street map, handrails are roads while on a topo map handrails can include creeks, bush edges, spurs, ridges, and tracks. As you move along your handrail route, recognizing identifiable features such as stream junctions will help indicate exactly where you are on the map.

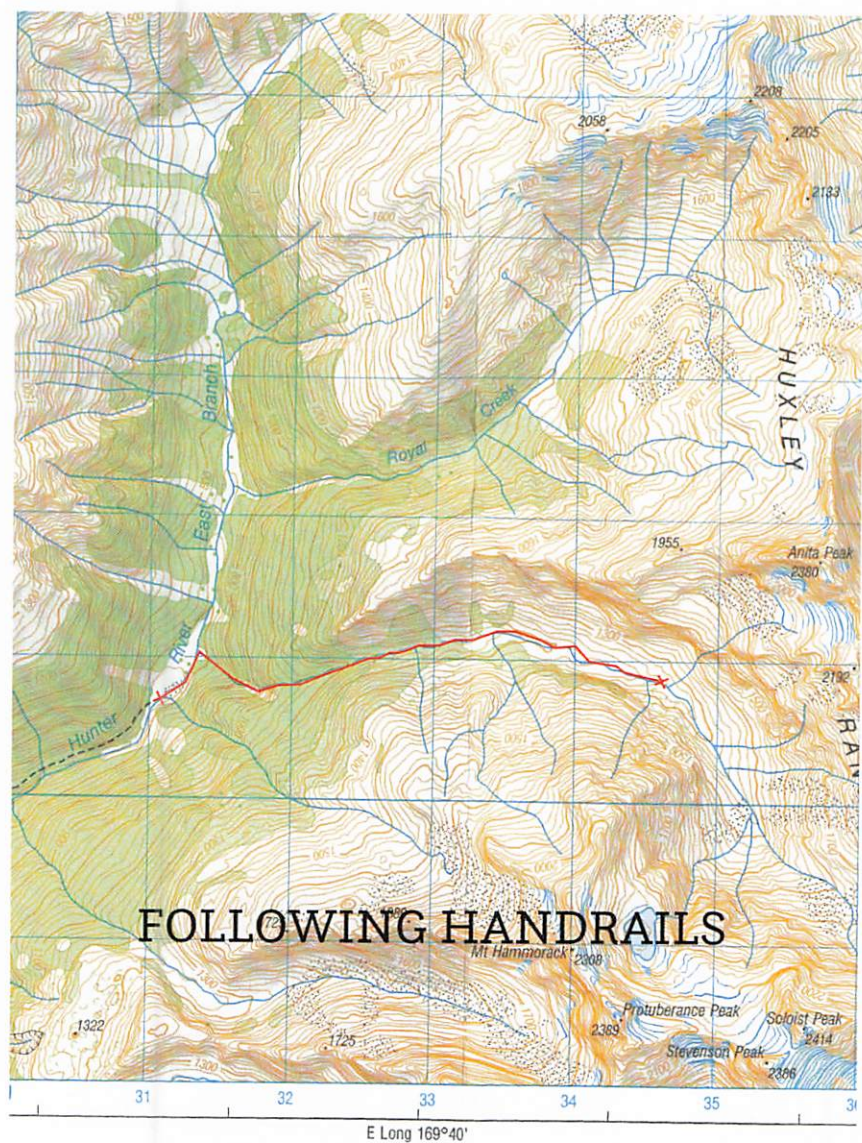


FIG. 42. Map route marked using handrails - Diagram: Erin Hewetson

Practice is required to develop your map reading skills. Next time you head into the hills for a hunt, take the map and practice. Study your map while you're travelling, hunting or when at camp in the evening to plan for the next day. It is a good idea to laminate the section of your map you need to waterproof it and make it last for a long time.

Orientating a Map Using Features

Orientating your map is helpful when using a map to navigate. Orientating the map means the features on the map are aligned to the features on the ground. For example, if you see a river on your righthand side, orientating the map will mean that the river will show on the righthand of your map relative to your location. To orientate your map, place it flat and rotate it until the features on the map align with the features on the ground. The north south grid lines on the map will then point north.

The Adjustable Dial Compass

The adjustable dial compass is needed when navigating with a topographical map. The compass has a dial that can be adjusted relative to the compass base plate, enabling the compass to be orientated to your map.

The compass has three arrows each with their own specific function:

1. The direction of travel arrow shows your direction of travel, or in other words the direction you want to go.
2. The orienting arrow will point to grid north on the map when the compass is orientated to the map.
3. The magnetic compass arrow will always point to magnetic north. Magnetic north is currently located northwest of Ellesmere Island in Northern Canada and moves over time.

Other parts of the adjustable dial compass include:

- The transparent baseplate with its long outside edge parallel to the direction of travel arrow.

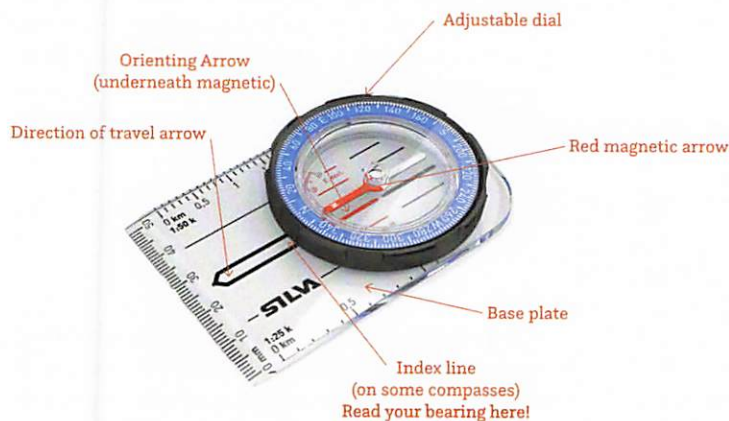


FIG. 4.3. An adjustable dial compass and its features - Image: Ampro

- The index line located at the base of the direction of travel arrow allows you to read a bearing in degrees.
- Orientating lines located parallel to the orienting arrow inside the dial are used to orientate the compass to the north-south grid lines on the map.

Orientating a Map Using a Compass

If you are unable to orientate your map using features because you are in thick bush or bad visibility, you can orientate your map using your adjustable dial compass.

To orientate your map using a compass:

1. Place the compass on the map with long edge of the base plate parallel to the north-south grid lines and the direction of travel arrow pointing to grid north at the top of the map.
2. Turn the adjustable dial so the orienting arrow also points to grid north and orienting lines are parallel to the north-south grid lines.



FIG. 44. Orientating a map using a compass - Image: Mike Ng

3. Rotate the map and compass as one until the red magnetic north needle points to the magnetic variation for the map you are using. In central New Zealand this will be 22° . Your map is now orientated and the features of the map will match those of the land.

Navigation Using the Topographical Map and Compass Together

It is first important to understand what is meant by magnetic variation, also known as declination.

There are three types of north and it is important to know what they are when using a map and compass:

- True North is the direction toward the earth's geographic north, in other words the North Pole. This north is not used when navigating using a map and compass.
- Grid North is the direction of the north-south (vertical) gridlines

on the topographical map and is used to orientate the map and compass together.

- Magnetic North is the direction the swinging magnetic compass needle points to and this is currently northwest of Ellesmere Island in Northern Canada. Magnetic North is used to obtain a final direction of travel from your compass.

The magnetic variation is the difference in degrees between grid north and magnetic north. In New Zealand the variation from grid north ranges from 18.5° in the north and 25.5° in the south, depending on where you are in the country. The degrees of magnetic variation specific to an area is included on the border of the topographic map. Remember the magnetic variation for the area you are in.

The basic function of a compass is to provide you with a direction of travel as a bearing in degrees, indicated on the index line. A compass bearing is an actual direction expressed in cardinal points or degrees. Degrees are shown on the adjustable dial from 0° to 360° . Cardinal points are shown on a compass as:

- North (N, or $0^\circ/360^\circ$)
- East (E, or 90°)
- South (S, or 180°)
- West (W, or 270°)
- Intermediate points, e.g., northeast (NE, or 45°) and north northeast (NNE, or 22.5°)



MAGNETIC NORTH on this map is $21\frac{1}{2}^\circ$ (382 miles) EAST of GRID NORTH during 2018 increasing at the rate of approx $\frac{1}{2}^\circ$ (9 miles) over 7 years.

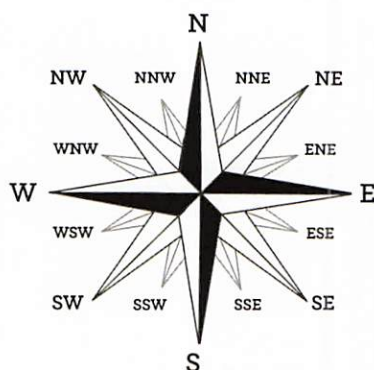


FIG. 45. Left - Magnetic variation as indicated by your map

FIG. 46. Right - Compass bearings

Obtaining a direction of travel using a map and compass:

Step 1. Lay the compass on the topo map with the long edge of the base plate placed from where you are on the map (call this point 'A') to where you want to go (call this point 'B'). Ensure the 'direction of travel' arrow points in the direction of where you want to go, point 'B'.

Step 2. Turn the adjustable dial so that the 'orienting arrow' inside the dial is pointing to grid north which is the top of your map. The orienting lines, also inside the dial, should be parallel with the north/south grid lines on your map. This step will ensure that your compass is orientated to your map. From the index line you can read the bearing in degrees that you will be travelling, called a grid bearing.

Step 3. Use the magnetic variation shown on the side of your map. Take the compass off the map without touching the dial. Hold the compass level at about chest height with the direction of travel arrow pointing away from you. Begin to turn yourself around until the red magnetic needle swings and points to the magnetic variation on the dial. Now the direction of travel arrow points the direction you are wanting to go.



FIG. 47. Obtaining a direction of travel using a map and compass - Image: Mike Ng

It is important to remember the grid bearing from the index line. When checking your direction of travel, ensure that your grid bearing is still on the index line and has not accidentally been moved which will send you in a wrong direction. Physically walking a direction of travel from the arrow of a compass can be difficult as it is near impossible to walk a straight line in the bush. The easiest method is to identify a feature that the direction of travel arrow is pointing to, such as a tree or rock and walk the easiest route to that feature. Once you arrive at the feature you know you are still on your bearing. Repeat this method as many times as it takes to reach your destination.

Back Bearing (Reciprocal)

A back bearing, or reciprocal course, is 180° from your original bearing. Obtaining a back bearing from your compass is used to return to a point along the same line of travel.

To do this:

- Leave the bearing on the index line you used to travel to your current location.
- Hold the compass at chest level with the direction of travel arrow pointing away from you.
- Rotate yourself until the white end (pointing 180° from magnetic north) points to the magnetic variation for the map you are using.
- The direction of travel arrow now faces the direction you came from.

Map Resection

Resection is a method used to find your location on a map. To do this you will need to be able to see at least two, preferably three, identifiable features on the ground such as a high point or river junction and identify those features on the map. If these three features can be at least 90° apart it will enable greater precision for identifying your location on the map. To do a map resection, follow these steps:

Step 1. Hold your compass horizontally with the direction of travel arrow pointing at the first feature on the ground. Adjust the dial so that the red magnetic north needle points to the magnetic variation for the map you are using. Do not adjust the dial again until you have completed all the steps and are ready to do your next resection with the second feature.

Step 2. Place the top of the long edge of the base plate on the first feature on your map. This will be your pivot point. Now turn the compass using the pivot point until the orienting arrow is pointing to grid north and the orienting lines are parallel with the north-south grid lines on the map.

Step 3. With a pencil, draw a line on the map from the feature along the side of the base plate. This is the first of three lines you will draw.

Now repeat steps 1 to 3 for the second and third feature. Once you have done this you will have three lines that will intersect to create a small triangle on your map. Your location will be inside that triangle. If you only have two available features and therefore draw only two lines your approximate location will be where the two lines intersect. Be aware that there will be a margin of error and resection will not pinpoint your exact location.

It is helpful to note that resection is achieved by reversing the steps of taking a compass bearing.

Aiming Off

Aiming off is a method for using a compass to indicate the direction of travel to a specific destination such as your vehicle parked on a roadside. If you take a bearing directly to your vehicle, it is likely you will either end up to the right or left of the vehicle not knowing whether the vehicle is to the right or to the left. For example, deliberately aiming off on a bearing to the right when you reach the road you know that your vehicle will be to your left.

Calculating Travel Times

When planning a hunt, it can be helpful to calculate your travel time. This may help you get back to camp before dark or arrive at a hunting

spot to take advantage of the best time of day. Travel times will differ depending on track conditions and whether you are walking on track or off track. The type of terrain and vegetation you are moving through as well as your fitness level will also affect timing.

The following will provide you with a general 'rule of thumb' to calculate travel times:

Distance:

- On an easy, well formed track you can travel 4-5km in one hour.
- On an unformed but marked track you can travel 2km in one hour.
- Off track you can travel 1km in one hour.

You will need to add some time for any uphill or downhill travel.

- If travelling uphill, add 4 minutes per 20 metre contour.
- If travelling downhill, add 2 minutes per 20 metre contour.

Finding North by Using Your Watch and the Sun

If you can see where the sun is (even through the cloud) you will be able to use your watch to find where true north is. It will be easier if you have an analogue watch but this can be done with a digital watch by estimating where the analogue hands would be.

The three steps for finding true north using your watch and the sun are:

Step 1. Point the number 12 (top of the watch) at the sun.

Step 2. Estimate halfway between the hour hand and the 12. This will indicate the direction of true north. (Note: take an hour off in the summer for daylight saving)

Step 3. Now that you know the direction of true north, select your direction of travel.



FIG. 48. Topographical map and compass - Image: Mike Ng

The Global Positioning System (GPS)

Most hunters now carry a GPS as their primary tool for navigating and it would be fair to say that many hunters no longer use or even carry a map and compass in the outdoors. The knowledge and skills used to navigate with a map and compass have been lost to a certain degree by those exploring the back country. There has become a complacency on solely using the GPS to navigate but it is important that hunters do carry a map and compass as a GPS is an electronic device and therefore can malfunction.

A GPS is a very useful tool and it has a number of specific functions which can be accessed quickly making navigating far less time consuming and generally more accurate.

How does a GPS work?

A GPS works by receiving signals from at least three, but preferably four of the 31 GPS satellites orbiting the earth. Signals from several satellites create a trilateration. Trilateration is a measurement of a series of distances that lets you know where you are on the Earth's surface

by giving you a set of coordinates on your GPS. The more satellites providing a signal, the greater the accuracy in pinpointing your position on the ground.

The GPS satellites transmit signals to your GPS receiver. Satellites have several very accurate atomic clocks that measure time. The UHF radio signals from the satellites travel in a straight line at the speed of light. The distance the signal travels between satellite and GPS receiver is calculated by the time the signal takes to travel to the GPS receiver. Think of this being like thunder and lightning. If the thunder sounds long after you see the lightning flash, the distance the lightning strike occurred can be determined as some distance away. But if the thunder sounds immediately after the flash, you know the lightning strike was close by. In this analogy, time enables you to calculate distance.

Ground monitoring stations on earth track the satellites' movements. If a satellite goes slightly off course, the ground station will update information and readjust the atomic clock accordingly. This ensures that the information received by your GPS from the satellite is always accurate.

Signals from satellites to the GPS receiver need to be unobstructed. The GPS will not work if you are hidden from the satellite or you are indoors, however they can travel through a tent or fly which is an indication of the strength of a GPS signal.

When using a GPS in New Zealand you will need to set it up so that any measurements such as distance and temperature are indicated in metric, and the coordinates are set to New Zealand Transverse Mercator 2000 (NZTM2000) which is the standard coordinate system for New Zealand. This will enable grid references from your GPS to correspond with any grid reference on an NZMS 260 series topographical map. Setup functions also include date, time, display, map type, compass calibration, and preferred heading (magnetic or grid). Setup is achieved by accessing the setup menu, much the same as this function on a mobile phone.

Using a GPS to find your location on a map

Modern GPS's have general maps already installed or if you want a NZ topographical map you can purchase an electronic map such as Map Toaster or Memory Map which will come on a micro-SD card and can

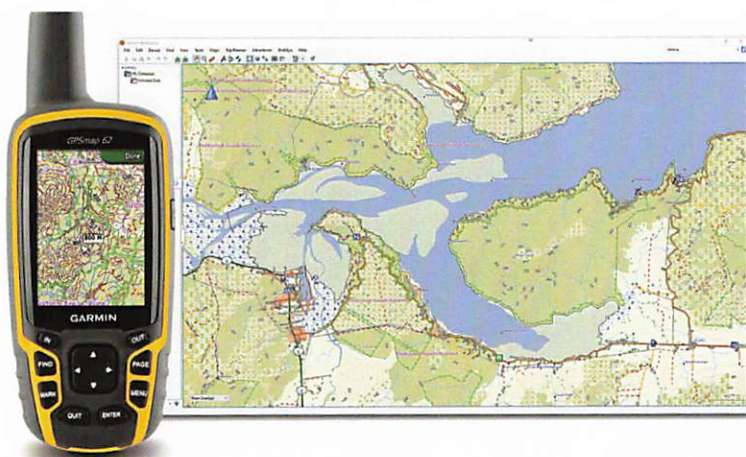


FIG. 49. Garmin GPS and map - Image: Ampro

be inserted into your GPS. The electronic map displayed on your GPS screen will indicate your location with an icon.

If your GPS does not have an NZ topo-map installed you will need to transfer your coordinates from the GPS to your physical topo map. When your GPS is turned on it will automatically begin acquiring satellite signals and when there are enough (minimum three), it will indicate 'position acquired'.

Your coordinates will be displayed as a 14-figure grid reference. The first 7 numbers are the eastings and the last 7 are the northings. To apply a six-figure grid reference to your map select the middle three eastings and the middle three northings for example if your GPS coordinates are E5127200 N1321700 your six-figure grid reference can be read as 272217. These can be transferred to the physical map to identify your exact location on the map.

If you are unsure how to find a six-figure grid reference from your map, refer to the map reading section of this manual.



FIG. 50. Handheld GPS and Topomap - Image: Mike Ng

Other Useful Functions of a GPS

Your GPS user manual will describe all of its specific functions in detail. Each model of GPS will differ to a certain degree on how it operates and where the various functions are located.

Useful functions include:

1. Marking a waypoint

A waypoint is a specific location such as your camp, a clearing or your vehicle. Marking a way point will show you a set of coordinates (14 digit grid reference).

Each way point can be saved and renamed from an automatically allocated number to a name that you have typed in for example, 'carpark'. This will allow you to find a specific way point saved in your GPS, open it, and select 'Go To'. The GPS will then provide information on direction of travel, distance to that way point, and information on your speed and estimated time of arrival. Note that if you deviate from your line of travel the GPS will automatically readjust the direction of travel arrow to always point at the selected way point. When you arrive at your way point the GPS will show 'arrived at destination'.

You can manually enter coordinates into your GPS and save these as way points. For example, this can be helpful if you find a clearing that is shown on your map that looks like it might be a great place to find deer. By entering the coordinates of the clearing from your map, you can create a way point for this and plan to travel to it the next morning by finding the clearing in the way point list and entering 'Go To'. This will provide you with a direction of travel and the distance to the clearing.

2. The compass in your GPS

All modern GPS's have an electronic compass that will give you a bearing and direction of travel. The electronic compass will require periodic calibration and the GPS will automatically prompt you when this is needed. Calibrating the compass is done by using the calibration function found in the menu, starting it while holding the GPS horizontal and following the on screen instructions.

3. Elevation and barometric pressure

The GPS will give your elevation (altitude) in metres above sea level. The barometric altimeter works by measuring barometric pressure. The altimeter will need to be recalibrated by loading a known altitude, such as a spot height on the map, because barometric pressure changes often. Some GPS's have an automatic calibration function. Knowing your



FIG. 51. GPS Functions - Image: Mike Ng



FIG. 52. GPS compass - Image: Mike Ng

altitude is particularly helpful to establish your location when climbing hills or mountains. Your GPS will also show barometric pressure in hectopascals (hPa) and a fall or rise in pressure which is helpful as an indicator to changing weather.

4. Tracking Log

A GPS has a tracking function that logs your route when activated. This information can be useful for a return journey where the original track can be followed, or to exactly mark your route on a hard copy map. The track will appear as a straight line if the GPS has been turned off or does not have a position acquired as you move.

Things to be aware of when using your GPS:

- Beware that your GPS will shut down if your batteries go flat. Always carry spare batteries.
- GPS satellites are continually moving across the sky as the earth rotates. There are times when there are only one or two satellites above which will make acquiring a position difficult. You may need to wait until enough satellites move across for you to acquire a position.
- Whilst thick bush canopy does not hinder the GPS signal to a great degree, wet canopy will. Wet canopy will affect signal strength and you may need to move under a hole in the canopy or an open area to acquire a position.
- Deep valleys may restrict the availability of satellites as they will be obscured by the hills around you. You may need to climb part way out of the valley to open up more sky and access more satellites.
- Selective availability of a GPS is controlled by the US government and in times of political unrest they may put a deliberate error into the satellite signal for civilian GPS's, and therefore affect their accuracy.

5 FIREARMS SELECTION, SAFETY & MARKSMANSHIP

Ngā Kōwhiringa Pū, te Haumarutanga
me ngā Pūkenga Pū

Hunting (other than bow-hunting) requires an appropriate firearm. Regulations and safety relating to firearms are fully covered in the **Firearms Safety Code** but for hunting there are some aspects that need special mention.

A Bolt Action Rifle

On the course we assume you have researched rifles, please refer to the Firearms Safety Code for a detailed description on how firearms operate.

The Firearms Safety Code can be found on the Police website.

Please refer to the below definitions for terms used throughout this chapter:

Bolt: A part that moves forwards to facilitate loading a cartridge from the magazine and backwards to eject the fired case from the chamber. The firing pin and extractor are often integral parts of the bolt.

Bullet/Projectile: What is propelled from the cartridge when a firearm is fired. Its purpose is to hit the target and the terms bullet and projectile are often used interchangeably.

Calibre: The internal diameter or bore of a gun barrel.

Cartridge: A casing containing a projectile (bullet) a propellant substance and an ignition device (primer) made to fit in the barrel chamber of a firearm. The term bullet is often informally used to refer to a complete cartridge with bullets inside.

Magazine: A fixed or detachable device for holding a number of cartridges that are fed directly into the firearm.

Recoil: The backward movement a shooter feels through the butt of the stock when the bullet is fired.

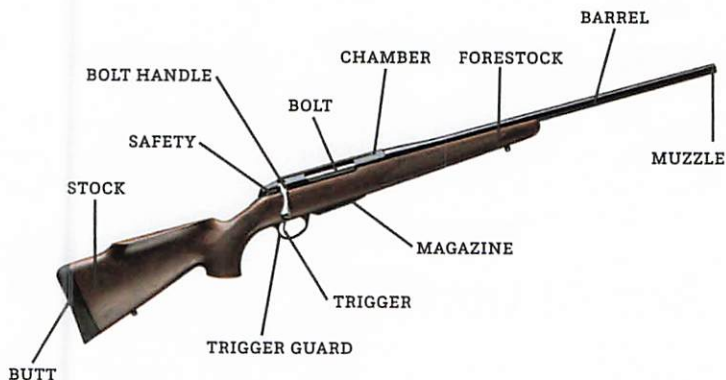


FIG. 53. Bolt Action Rifle - Image: iamhunter.net

Immediate Supervision

People going on their first hunt with a more experienced person may not yet have a firearm of their own. To lawfully possess or use a firearm you must hold a firearms licence or be under the immediate supervision of a licence holder.

“Immediate supervision” means that there will be only one firearm between the two, and that the person supervising will always be close enough to take control of the firearm if necessary. The unlicensed hunter

cannot go off on their own, not even to stalk closer and take a shot while the supervising shooter remains a short distance behind.

There is currently no legal minimum age to hunt under supervision, but there is a minimum age of 16 to have a firearms licence. Ensure the unlicensed hunter is mature enough and physically capable of operating and safely carrying the firearm under supervision.

Carrying, Storing and Transporting Firearms

The requirement to keep your firearm safe and secure applies not only while you are hunting, but also when transporting it and while you are at home.

The [Secure Storage Guidance for Firearms and Ammunition](#) police document outlines the requirements for when you take a firearm on various types of transport, including keeping it out of sight, locked, secure at all times and storing ammunition and integral parts (i.e. bolt) separately.

Many hunting areas require a long drive to access them and often you cannot take your firearm with you while you leave your vehicle. Legally, your firearm may be left unattended for up to 60 minutes when the vehicle is in your immediate vicinity. When you leave your vehicle you must ensure it is locked with the windows up, if you have an alarm it must be armed and the keys must be in your possession. You also need to park in a very open and public place where you can see the vehicle. The firearm must be well out of sight in a locked box or case and hidden from sight. Your ammunition must be stored separately and securely too. Bolting a metal box in your vehicle for extra security is something you might consider.

During a normal hunt, daytime security is manageable because you will have the firearm constantly in your possession, but in camp it's another story. If you are alone and have to leave the firearm out of your reach (e.g., while fetching firewood) put it in your unrolled sleeping bag and place the bolt and ammunition in your pack to take with you.

In a hut that may be used by others the firearm should be secured with the bolt and ammunition removed and stored separately. Clearly it is impractical to carry your lockable hard case into remote huts, but a steel cable with a lock is light and inexpensive and can be used to secure a firearm to the frame of a bunk. Some huts now have purpose built firearm storage complete with plastic covered wire cables, so you can secure your unloaded rifle with your own padlock.

Children and unlicensed people must not gain unsupervised access to your firearms or ammunition under any circumstances. Taking all reasonable precautions is important to stop loss, theft, or misuse of your firearm. Taking the time to safely secure your firearm is what is required to be prudent in obeying the law. If someone accesses your firearm, you might be held responsible or the person shot could be you or somebody you know.

Hunting in a Group

Hunting in a group is commonplace when pursuing certain game, especially hares and wallabies. This requires open country with easy travel and no thick vegetation. Groups of hunters scour each section of countryside by moving forward in a single line, abreast formation perhaps no more than 20–30 metres apart. However, this is potentially the riskiest hunting situation of all.

Everyone needs to understand that there are special rules for safety here:

- No matter how experienced the hunters, there must be a thorough briefing of all participants together just before setting out.
- Hi-Viz clothing is an essential safety precaution for all participants.
- Each hunter may shoot only in a narrow arc to the front. The line must be kept straight and if game moves out of your permitted arc of fire you should not shoot, instead call to the next person up the line.



FIG. 54. Hunting in a group - Image: Mike Ng

Hunting Individually in Shared Country

Before members of a hunting party set out from camp to hunt individually, there should be a discussion to clearly decide where each person will hunt. If there is any possibility that not all will set out at the same time in the morning the discussion should be held the night before.

Together you should study a map of the area (or at least a scratched map on the ground) that shows the valleys, creeks or rivers and ridges involved. The party should also discuss what will be done if anyone becomes lost or otherwise fails to return. A good catch phrase to remember this is “plan your hunt; hunt to your plan”.

Each person needs to be allocated their own totally separate area to hunt with no overlaps. The boundaries need to be very clearly defined (e.g., by prominent ridge lines, riverbeds and other clear geographic features). A proportion of unintentional shootings take place when a hunter strays into his mate's territory – so make sure there is no misunderstanding!

You must also bear in mind that another party could be in the area, both

parties hunting separately and unaware of each other. Before setting out, each member of the party should know each other's intentions, the party should clearly state their intentions in the hut book and check the intentions book at the track end or local DOC office. In the latter case, enter your own intentions at the same time too. If you meet up with other shooters, discuss your intentions and if necessary, negotiate how you will share the available territory.

A well-documented high risk situation is when hunters decide to separate leading to one hunter shooting the other, thinking they were a deer. This often happens in the heat of the moment. It is recommended that if members of the same hunting party separate and lose visual contact, cease hunting and only resume when visual contact is regained and confirmed.

The NZDA promotes safe hunting practices, including the wearing of high visibility clothing that contrasts with the environment and the game being hunted. To be effective, a responsible hunter should wear enough high visibility clothing to ensure immediate recognition by other hunters.

The Seven Basic Rules of Firearms Safety

All firearms safety rules can be found in the Firearms Safety Code but are repeated here for emphasis. If these rules are obeyed at all times, unintentional shootings would almost never happen. If one rule is inadvertently broken, the remaining rules should provide a failsafe system.

RULE 1: Treat every firearm as loaded.

RULE 2: Always point firearms in a safe direction.

RULE 3: Chamber a cartridge only when ready to fire.

RULE 4: Identify your target beyond all doubt.



FIG. 55. Wellington and Porirua HUNTS Course - Image: Gwyn Thurlow

- You must positively identify your target beyond all doubt before firing. If in doubt, do not shoot! The shooter, and anyone supervising an unlicensed shooter, must both positively identify the target.
- Make absolutely certain you identify your target correctly. Identify the target animal/game using at least all the characteristics of movement, colour, sound and shape.

Identify all of the animal.

- Do not fire at movement only
- Do not fire at colour only
- Do not fire at sound only
- Do not fire at shape only

RULE 5: Check your firing zone.

- Be aware of what you could hit in the area between you and your target, and in the area beyond your target.
- Ask yourself "What could happen if I miss my target?"

- Extreme range for projectiles may be as much as:
 - .22 rimfire: 1.5 kilometres
 - .308 calibre: 4.5 kilometres
 - Airgun: up to 400 metres
 - Shotgun: from 250 metres to 750 metres (Depending on the type of cartridge)
- Sights need to be set correctly to prevent rounds falling short or going far beyond the target.

RULE 6: Store firearms and ammunition safely.

RULE 7: Avoid both alcohol and drugs when handling firearms.

- When handling a firearm, you must be able to think clearly. Alcohol and some drugs (even if prescribed) dull and slow your mental and physical reactions.

Alcohol and Firearms do not mix! Ever!

- Alcohol and drugs must never be taken just before you go shooting or while you are shooting. Wait until your firearm has been safely locked away before you consume alcohol or drugs.
- Do not shoot with others who are, or have been, drinking alcohol or taking drugs.

Some medications can induce drowsiness and if the package carries a warning against use when driving, then the same caution should apply with regard to firearms.

Note: It is NZDA policy that there is no alcohol at all on HUNTS courses and activities, this applies to trainees and instructors alike.



FIG. 56. Upper Clutha HUNTS Course action - Image: Roger Brash

Firearms Safety in a Hunting Context

The below guidelines outline the minimum recommended requirements for safe firearms handling when hunting:

- Immediately when a firearm is handled it must be checked by opening the bolt, removing the magazine and checking the chamber is empty.
- No magazine should be loaded until you are in your chosen hunting area.
- When you expect to sight an animal, the rifle should be carried with a round half pushed forward into the chamber and the bolt left half open in a state of semi-readiness. You should be able to see at least half the shell of the cartridge.
- A bolt in the half lock position (pushed fully forward and in the up-lock position) is not a state of semi-readiness. The bolt can be easily knocked down into the fire position or released by pulling the trigger, causing an unintentional discharge.
- Identify your target beyond all doubt before aiming.



FIG. 57. Half open bolt in a state of semi-readiness - Image: Mike Spray

- Load the chamber only when ready to fire.
- Consider your firing zone to and beyond your target.
- Unload your magazine when you leave your hunting area.
- Store and secure your rifle with the magazine out and bolt removed when at the hut or camp. Secure your ammunition separately.
- Never rely on a safety catch as it is mechanical and can fail or easily be bumped into the fire position.
- Before closing a bolt on an empty chamber, carefully look to make sure there is no ammunition in there.

Hunting Related Incidents and Unintentional Shootings

In a hunting context, unintentional shootings and particularly fatalities, have trended downwards in recent years.

Hunters must be aware that seasonal use of the outdoors is very high over the Christmas/New Year holidays and in April and May, during

the roar. Hunters must expect to have contact with other hunters and trampers at these times and take special care.

While most unintentional shootings are caused by older (30-35yrs) supposedly more experienced hunters, shootings involving those under 16 are usually the result of unauthorised access and/or unsupervised use of firearms.

Further reading:

- Firearm safety: 'New Zealand Firearms: An exploration into Firearm Possession, Use and Misuse in New Zealand', by Chaz Forsyth 2013
- 'To Hunt and Return: An analysis of deer hunter deaths', by Joe Green 2003
- 'Behavioral, cognitive and psychophysiological predictors of failure-to-identify hunting incidents', Dr Karl Bridges 2020

Firearms and Marksmanship

Your firearm needs to kill quickly and cleanly to be ethical. This is not only humane but sensible and is your obligation as a responsible hunter.

In this chapter we will help you choose the right rifle, calibre and combination for most New Zealand hunting situations as a beginner. In years to come there will be lots of discussion around rifle calibre and firearm selection, your obligation is to make sure that your personal selection will ensure ethical hunting practices.

Achieving a clean kill begins some time before you start hunting. Starting from when you choose your firearm and ammunition and continues when you first sight it in for accuracy and then practice to become a competent shot. By the time you come to take a shot at any animal you should know your personal firearm and where it shoots at a given range. Where you place the shot should be almost automatic at this stage because you only have a few seconds in which to act or risk losing your opportunity. Choosing the spot precisely is also a major safety issue because it gives you a chance to clearly identify the animal. This helps eliminate the unforgivable mistake of shooting something you should not, like another hunter.

Calibre Selection

It is recommended that you choose your rifle calibre adequate to the animal you intend on hunting. Rifle calibre generally refers to the diameter of the projectile (round or bullet). Some examples of common calibres are .243, or 7mm-08 in these instances the size of the projectile is .243 of an inch or 7mm, respectively. There is also European examples such as 6.5x55 which have a projectile size of 6.5mm and case size of 55mm.

Centrefire ammunition projectile weight is measured in grains i.e. a .243 weight ranges between 55 to 100 grains. Consider the projectile composition and grain weight when purchasing ammunition, this is elaborated on further in this chapter.

In New Zealand, common ammunition types can be readily purchased and are factory made to very high standards however some hunters load their own ammunition. They reuse their cartridge cases; adding different types of powder and different types of projectiles which can increase the rifles accuracy. Loading your own ammunition can save money and make shooting cheaper, however it requires specialised loading equipment and is generally something that hunters may get into later, if they have the interest.

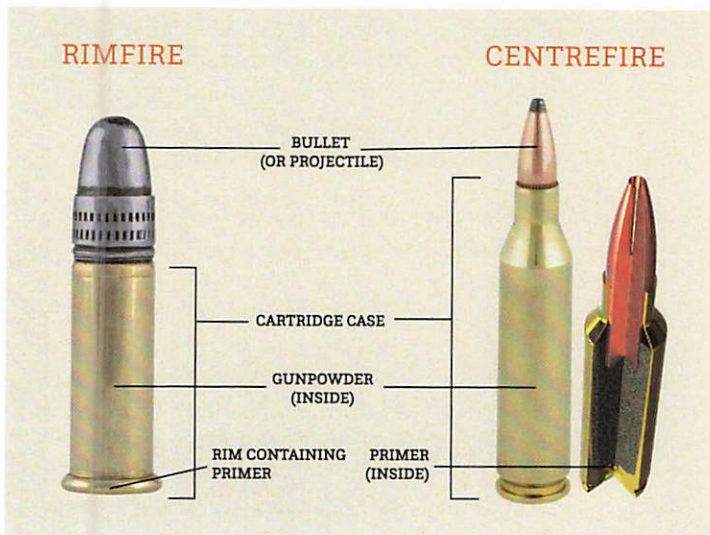


FIG. 58. Bullet projectile components - Images: Federal, Annotations: Erin Hewetson

Rimfire

A rimfire generally refers to a .22, .22 magnum, or .17HMR however there are others. These tend to be the most popular or available firearm in NZ and are most often used for pest control of small animals.

Rimfire ammunition works by the rifle's firing pin striking the 'rim' of the case, hence the name, rimfire. In the rim of the case is a primer compound and this ignites when struck by the firing pin. With the primer compound igniting, this in turn ignites the gun powder forcing the projectile down the barrel.

Centrefire

A centrefire refers to a .222 or above including calibres commonly used for big game hunting. A centrefire cartridge works by the firing pin hitting the primer on the cartridge base which causes a small explosion or spark inside the case and ignites the gun powder. This explosion forces the projectile out from the case and down the barrel.

Choosing a Firearm for Game Hunting

To make that quick clean kill, your firearm must be capable of delivering a suitable projectile with sufficient penetration and energy. It takes about 1000 foot-pounds (ft-lbs) of down range energy to kill an animal, so choosing a caliber that has enough projectile weight combined with down range energy is very important. This is especially important at distance as your projectile needs to be able to penetrate, expand and deliver enough energy to kill the animal.

Some calibres like .22 Hornet, .222 and .223 are not ideal for hunting larger game animals and are more suited to smaller animals such as wallabies or goats. This is because a .22 calibre projectile does not have the energy required to humanely kill a large game animal. The potential to wound the animal and have it run off to suffer a slow death is not what any hunter wants to achieve. Smaller calibres lack potential penetration over longer distances.

The lightest round for satisfactory use on larger game animals e.g., deer would be the .243 which is noted for its accuracy, light recoil, modest noise and flat trajectory.

Common larger calibres include the 6.5x55, 7mm-08, the .270 and .308, these are the current top choices of many hunters for accuracy and flat trajectory and there are numerous projectiles and loads available. Recoil and noise are moderate to high but are much reduced by the use of a suppressor (see later in this chapter).

Besides these calibres, there are magnum varieties such as the .300WSM, 7mm Rem Mag, and 300Win Mag, which are widely used by hunters who need to shoot at long range for example when alpine hunting. There is significant recoil when using these calibres.

You might also want to consider a .22 rimfire calibre for pest control such as rabbit control operations. A .22 offers a cheaper way to go shooting to help increase your shooting skills, target acquisition and accuracy while also practicing firearms safety and handling. A .22 is generally accurate out to about 50-70m. There are other calibers such as .17HMR or .22 Magnum which are more expensive to shoot but allow larger range allowing the ability to shoot out to 100-150m. There are a number of different types of .22 available, including bolt action, semi-automatic, lever and some pump action.



FIG. 60. Bolt action rifle checking the chamber is empty - Image: Mike Ng

Shotguns come in pump action, semi-automatic, or double barrel (either side by side or over and under). Shotguns are used for bird shooting such as ducks, quails, pheasants, Canada geese etc. They can also be used for rabbit or wallaby shooting, you may want to take it further by getting involved in trap or skeet shooting with a club as you can learn a lot from those experienced shooters.

DOC hunting permits restrict the use of shotguns and rimfire calibres on public land, so always check your permits and obey landowner conditions on what firearms and calibres may be used.

Rifle Actions

Once you have chosen the caliber, you need to choose what type of action you want. The most common is the bolt action firearm due to being easy to operate, reliable, and safe. Other options include pump action, lever action, and single shot actions.

Pump action centrefire rifles are not commonly used for hunting in New Zealand.

The lever action is common in centrefire rifles of calibres from .30-30 to .44 magnum. They are light, excellent in the bush and can be used by both left or right handed shooters and are most commonly used by pig hunters for these reasons. Lever action rifles usually have a tube magazine, meaning that the cartridges are flat nosed and more suited to short range hunting.

Semi-automatic actions in centrefire calibres are prohibited for use in NZ except for licensed pest control operators. Their use and possession is tightly controlled and they are mainly used in official pest control operations for example in DOC animal management.

Single shot firearms come in a wide variety of calibers and are most commonly associated with pig hunters as they are generally very small and light to carry. However, there are some very accurate rifles for hunting like the single shot Ruger No1.

Sizing Your Firearm

It is important to have a rifle that suits your stature. This means when selecting a firearm, think about the type, fit and weight of the firearm determined by barrel weight, barrel length, action type, action length, type of stock and length of pull. Choosing the right combination is complex and requires some trial and error to get right. It is a good idea to handle a lot of firearms and see what fits best for you and your intended style of hunting.

Longer barrel lengths were once common for hunting in open country but nowadays the trend is for shorter length suppressed barrels which are less likely to get caught up in the bush and make a lighter, easier to carry firearm. Barrel lengths are commonly down around 460mm (18 inches) and when paired with the right calibre are an ethical and practical choice.

Synthetic rifle stocks have advantages over wooden ones in that they do not warp with moisture, but they do vary in quality. Look carefully at the standard of finish in bedding areas and check what kind of noise is produced by something scraping over it, as will happen when hunting in scrub or thick bush. Beware of a noisy stock, which might scare game close by. Modern synthetic rifle stocks reduce weight and when properly installed improve accuracy. In recent years there is also a trend of using carbon fibre stocks which are very lightweight and strong but expensive.

Typically, a modern sporting rifle will weigh about 3 to 4.5kg. A lighter rifle is easier to carry during the long hours in search of game but has increased felt recoil. Larger calibres will have relatively more recoil, if the firearm is reduced in weight i.e. by fitting a carbon fibre or synthetic stock. For rifles of lighter recoil, 3kg is acceptable but for the heavier loads a 3kg rifle may be too light. There is always a trade off between weight, recoil and ease of carry and each variable can add extra cost.

Rifle Sights and Scopes

Most new rifles nowadays do not come fitted with open or iron sights but are designed to be fitted with telescopic sights, also known as scopes.



FIG. 61. Scope sighting - Image: Callum Sheridan

Iron sights are rugged and light but require the eye to line up three things at once. Optical sights concentrate the light and are especially valuable at dawn or dusk especially those with lower magnifications and larger objective diameters. A telescopic sight also places the sight elements in the same plane of vision as the target, so there is no problem focusing on what you see. Some even have an illuminated reticule.

Laser and red dot sights are also available but are not recommended for novice hunters. Laser sights work by projecting a dot on the target in the same place as your normal sighting spot. They are excellent for short range work like shooting rabbits or pigs but are generally unsuitable at longer range. Red dot sights do not project a beam of light to the target like the laser sight but optically superimpose a small red dot on the target which only the shooter can see when looking through the sight housing. The brightness of the dot may be varied to suit conditions. Red dot sights have a great speed advantage for shooting at moving or dimly lit game, when the shooter keeps both eyes open and swings the rifle until the dot is on the target. This is ideal for shooting at a moderately short range in the low light of dawn or dusk.

Like binoculars, scope sights are described by two sets of figures, e.g., 4 x 40. In this example, the 4 means 4 times magnification (which will make an object appear four times closer), and the 40 means a front objective lens diameter of 40mm. The bigger the diameter, the

better for hunting in low light because of its increased light gathering ability. The greater the magnification the smaller the field of view so it becomes more difficult to locate your target and hold it steady in the cross hairs. It may seem a good idea to magnify the target as much as possible but it is not helpful to have too high a magnification because it restricts your peripheral field of view. For most bush stalking and for moving game a 3x or 4x magnification scope is ideal for closer range shots. For longer range alpine shooting, you will want to go as high as 12x magnification because shots are generally longer (e.g. 200 metres or more).

For the novice hunter, a vari-power scope of 3-9x40 or 3-12x40 magnification would be recommended because those specifications cover most common shooting situations. Variable power scopes are widely available and very popular, as they enable the hunter to vary the magnification depending on the shooting distance.

Invest in a good quality scope that has a good guarantee and is well built by a reputable manufacturer. It is worth investing in a high-quality scope and you should spend the same amount of money (or more) than you spent on the rest of your rifle set up.

Looking through a telescopic sight the shooter will see cross hairs or a reticle superimposed on the target. There are many types of reticle patterns. Sometimes the lower half of the vertical hair is enlarged to a tapered post which is good for bush work, where fine cross hairs can disappear in the gloom. Sometimes the outer ends of the horizontal hair are thickened, with the fine hair only across the centre. This can help with range estimation, as the length of a red stag's body, side on, will fit just across the finer part of the cross hairs at about 300 metres. Some reticles are internally illuminated from a small battery and this is ideal when shooting at dawn or dusk.

There are also two reticle types: first focal plane (FFP) and second focal plane (SFP). The focal plane determines how you see the cross hairs on variable powered scopes. FFP scopes mean that as you adjust the power setting, you adjust the reticle the same way (increase the reticle and it grows larger, decrease the power it gets smaller). With SFP reticles, as you increase or decrease power the reticle stays the same size. Both

have their advantages but ideally check to see what you like, talk to experienced hunters/shooters and get their opinion.

With all scopes there is the risk that a fall may knock the reticle out of alignment. There is also the risk of moisture finding its way into the scope and fogging the lenses, making it impossible to use. Higher quality scopes have good seals or are constructed from a one piece tube rather than sections, alternatively they may have a steel tube rather than a light alloy one that is more easily bent. To keep moisture out, the scope body is normally filled with dry nitrogen or argon gas. Besides damage from bumps, leaks can occur through the scope becoming hot in the sun and then being taken out in the cold, causing the gas inside first to expand and then to contract and draw in moist air. New Zealand hunting is done in areas where there can be sudden rain and a chance of getting wet in a river, so your scope sealing needs to be the best you can afford.

As you get more experience you will find there are a multitude of different scopes that have advanced functions. At some stage you may want to upgrade to a better quality or more functional scope, such as one with target turrets, an illuminated reticle or better light gathering capabilities.

Tips

- When choosing a scope, first check what experienced hunters are using and ask them why they choose that make or model.
- Get a dealer or gunsmith to give you a number of models to look through outside the shop or workshop.
- Check how sharp the target looks and how clearly you can see the sighting elements against dark targets.
- Make sure your scope comes with a waterproof and fog proof certification.
- Buy a neoprene scope protector to keep it protected when in the field.
- Never wipe your lens with toilet paper, only use a lens cloth.

Scope Mounts

Scope mounts or the clamps that fasten the scope to the rifle vary in design and quality. If they move where they attach to the rifle or if the scope tube moves in the mounts, shooting accuracy will be lost. When setting up the scope, a smear of Loctite thread locker can be applied to the rings and more should be applied to the threads of the screws. Use a torque wrench to tighten the screws as they need to be tight but not over tightened.

Most gun stores will fit your scope for you however it is good practice to check their workmanship closely yourself.

Buy good quality scope mounts. The best are steel although they might be a little heavier than alloy mounts, steel mounts are less likely to move due to vibration from recoil.

Having chosen your rifle and scope combination, you will usually have the scope fitted and given an initial lineup with an optical collimator by the gunsmith or retailer. If the sights are not initially lined up with a collimator you will need to boresight the rifle, see further below.

A good investment is to ensure your rifle has a sling for carrying. Some hunters don't use slings but it's not until you have to climb up or down steep areas using both hands that you realize how important slings are. There are a lot of different types of slings - check out what is available or get a recommendation from an experienced hunter.

A good quality rifle bag, whether a soft padded one or hard carry case is essential for safe transport. You must purchase a lockable type to comply with transport requirements. A case or bag protects the rifle and scope from getting bumped or damaged while in transit. If travelling by plane, a hard case will be required so that it can be locked and safe from rough handling. After a long time in transit, you may want to check that your rifle is still zeroed before hunting.

Bipods are a worthwhile investment and generally used when taking longer shots in open country, however are not needed in close bush stalking. They can be removed easily, and placed in your day bag while bush stalking then simply reattached when needed. Bipods provide

excellent stability for longer shots, but can change your point of impact when removed. You should practice with your bipod at the range, sight in using your bipod and be familiarized with different shooting techniques. Choose a quality bipod that will provide adequate stable shooting.

Shooting sticks are becoming more widely used for when you would normally take a standing shot as they offer a steady platform.

Boresighting

Bore sighting is the process where you line up the inside of your barrel (the bore) and the crosshairs of your scope reticle with the target using the human eye. You will need to put your unloaded rifle, with bolt and magazine removed into a firm rest that doesn't move. You could use an old cardboard box with purpose made cuts to sit the rifle in, a purpose built gun vice or sandbags. You place a target at 20 metres with a bullseye you can clearly see when looking through the bore from the chamber end. You need to line up the bore so there is a concentric ring of light around the bullseye (i.e., it is centred in the bore). Without moving the rifle, move your head up to look through the scope. See where the crosshairs are. If they are not on the bullseye make the required elevation (up/down) and windage (left/right) adjustments to move the crosshairs to the bullseye, taking care not to move the rifle in its rest in the process. Check the alignment several times for accuracy. Once the bore and the reticle are both "centred" on the bullseye you are bore sighted. You can then take your bore sighted rifle and zero it.



FIG. 62. Boresight - Image: Source unknown

Sighting in or Zeroing on the Range

First, check that all screws are tight, especially those attaching the action to the stock and the sight mounts. Take your rifle and a quantity of the ammunition you will be hunting with to the NZDA range and set up a target at only 25 metres. It is essential to start close because often a rifle newly fitted with sights won't hit a target at 100 metres and you may not be able to tell where the bullets are landing. It is also essential that you have a completely stable platform for your rifle to be supported, i.e., use sandbags or a gun vice.

Set up to shoot on your stable platform and carefully squeeze off three shots aimed dead on the centre bullseye. Unload the firearm and go and inspect the target for your bullets' impact. A tape measure is useful to check exactly how far to the side (windage) and how far vertically (elevation) the shot group has impacted. Unless one shot is way out (known as a flyer), average the three. Return to your rifle and first make the sideways adjustment on the scope, in the direction indicated by the arrows on the knob. A minute of angle (MOA) adjustment moves the group 6mm at 25 metres, 12mm at 50 metres and 25mm at 100 metres. If you have an aiming box you can set up the rifle with the reticule lined up on the centre of the target, then adjust the sight until it covers the centre of your first three bullet holes. This is pretty foolproof but if you haven't got a box, count the clicks to adjust the sight the desired amount towards the bull sight to ensure the bullet impact will hit the bullseye.

Fire another group and adjust again as necessary until the groups are printing in the same vertical line as the bull. Then adjust for elevation, going through the same steps. Besides getting your rifle sights true, this exercise helps get you used to your new rifle. Once completed, your rifle is "zeroed".



FIG. 63. Sighting in on the range - Image: Gwyn Thurlow

Troubleshooting

If you are having problems with your grouping despite ensuring a steady rest, there may be a number of things causing the problem, including: differing barrel temperatures, condition of the barrel, brand or type of ammunition, scope functionality, scope mount or tightness of screws. Seek some advice from a gunsmith or an experienced shooter.

If tightening the screws be sure to use the correct tool of the right size with good grip and keep it at right angles to the screw head to avoid damage. Your rifle is a finely engineered piece of equipment, and you want to keep it that way.

Once you are shooting consistent groups at 25 metres, then start working on a target at 100 metres. For example, with flat shooting calibres such as the .270 you will want to adjust the elevation so that groups are 50mm high at 100 metres. This will leave you with a zero at 200 metres and your round should hit only slightly high at distances closer than that, or slightly lower out to 250 metres. For 300 metres, you would need to raise the point of aim about 150mm allowing for a drop of about 200mm.

NOTE For other calibres, the information relating to trajectory and where the bullet will hit at various distances can be found on the original ammunition packet.

- The information on the packet is in yards and inches so you may need to take this into consideration when zeroing your firearm.
- American and European scopes use different units of measurement when adjusting elevation and windage, make sure this is also taken into consideration when zeroing your firearm.
- The information on the packet is in yards and inches so you may need to take this into consideration when zeroing your firearm.
- American and European scopes use different units of measurement when adjusting elevation and windage, make sure this is also taken into consideration when zeroing your firearm.



FIG. 64. Understanding the ballistics of your rifle and ammunition combination is important, the first place to look is on the package - Image: Federal

Bullet Trajectory and Maximum Point-Blank Range

Depending on what style of hunting you do (short-range bush stalking, or longer range alpine hunting), you need to zero your rifle to match your intended ranges to ensure an accurate, and ethical shot. For bush stalking, a 100m zero is usually sufficient with some hunters even zeroing in at 50m. For alpine hunting, a 200m zero is usually the minimum zero range with some hunters zeroing at 300m depending on calibre (see diagram on next page).

As soon as you fire the rifle, and the bullet (projectile) leaves the barrel it will actually rise above what you are aiming at through the scope (sight line). This will happen until it no longer has the energy to resist gravity

and air resistance, therefore slowing down and dropping below your sight line until it falls below the intended target.

At some point in this arc the bullet will intersect your sight line as it passes through on its way down. This point is known as your maximum point-blank range (MPBR). MPBR is the distance at which you can effectively aim dead on and hit the animal within the kill zone without having to aim high (typically a 10inch/250mm circle for big game).

At ranges shorter than this, your projectile will hit slightly high and beyond this MPBR it will hit slightly low. You essentially get a circle of error consisting of plus or minus several inches/cm depending on calibre, bullet, muzzle velocity and zero range. Every rifle will be different.

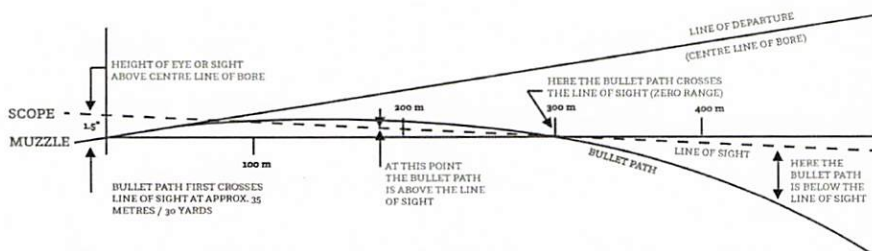


FIG. 65. Example of line of sight and bullet trajectory with a maximum point-blank range (MPBR) of 300 metres.

Care and Cleaning

Before leaving for the range or to go hunting it is important to inspect your firearm, in particular the barrel, and run a clean, dry patch (with no oil on it) through the bore of your rifle. Oil in the barrel will raise chamber pressure when a shot is fired, could damage the barrel and it may cause the shot to be inaccurate.

Clean and lubricate your barrel again when you have finished using your rifle for the day, even when you have not fired a shot. Don't use cleaning patches that are too large, or they will jam in the barrel. You can clean your barrel using a cleaning rod or a pull through, bore snakes are a popular option for cleaning your barrel in the field.

When using pull-throughs and cleaning rods always insert from the

chamber end and pull straight and evenly in line with the barrel to avoid damaging the muzzle crown. Damaging the muzzle crown can affect the accuracy of your firearm.

If your barrel is particularly fouled, a heavy duty clean could be necessary:

1. Swab the bore with a flannel patch saturated with solvent or cleaner.
2. Let the solvent do its thing for about 20 minutes then put several clean dry patches through the bore, if you can see long streaks there is still some fouling and you will need to scrub the bore to remove this.
3. Use a bronze brush wet with solvent and pull from the chamber to the bore about 10 times, taking care not to damage the muzzle crown.
4. If the bore will not clean, you may need to go back to step 1 and repeat this process.
5. Pull clean dry patches through until the bore is clean.
6. Finish with a loose patch moistened with good quality oil or a teflon lubricating preservative.

Wipe all dirt from the bolt body, ensuring all the recesses are clean and wipe it with a lightly oiled rag. Clean any dirt from around the action and take special care to ensure there are no leaves, twigs, etc. caught between the barrel and stock fore-end (an area referred to as the barrel channel). Wipe all metal parts with a lightly oiled rag. A light smear of oil preserves against corrosion, but too much will gather dirt and grit.

Remember to clean the bore with a dry patch again before you next use the firearm.

Suppressors and Muzzle Brakes

Many hunters use suppressors on their rifles. Some call them “silencers”, but they only reduce the noise of the muzzle blast. They do not remove the supersonic “crack” of the projectile unless you’re using subsonic ammunition. The big advantage of suppressors in a hunting context is the noise reduction and protection to your hearing. Gunshots from any



FIG. 66. Rifle with suppressor - Image: Mike Ng

unsuppressed firearm can cause hearing loss. Secondly, because you are reducing the noise of the “bang”, game animals often can’t tell where the shot is coming from and hang around a bit longer to try and work it out. This often presents the hunter with an opportunity to shoot again. A suppressor will also prevent alarming animals in other areas nearby.

Advantages of suppressors are:

- Reduced muzzle blast, noise and recoil
- Improved grouping of rounds

Disadvantages of suppressors are:

- Increases the overall length of a rifle (unless the barrel is shortened)
- Changes the balance of your rifle
- Your point of impact will change if removed
- Additional weight
- Cost

Muzzle brakes are a way to reduce recoil by diverting the blast of expanding gases that would follow out the end of the barrel to the sides. They are small, lightweight and screw on to the end of the barrel. On larger calibre rifles they can reduce recoil by up to 40% however the downside is that they make firing even louder. Hearing protection is an absolute must when using a muzzle brake.

Shooting Positions

Prone is the steadiest position (especially when using a bipod) followed by sitting, kneeling and finally firing from standing, known as offhand.

Sitting is often a steady position in more open country. Elbows should rest against the insides of the knees. For downhill shots, the elbows may project past the knees which will support the upper arms. Heels should be well dug in.

Kneeling is not as steady as sitting because the firing arm is not supported. The elbow supporting the fore-end of the rifle should be directly underneath. Usually, the elbow projects past the knee supported on the upper arm muscles. Sitting back on the rearmost foot gives you the steadiest support.

Although the offhand firing position is the least stable it is often the only position you can use, so practice until you are comfortable and competent with it. A competent shooter can reliably hit a target from the offhand position at shorter ranges.

Have your feet about shoulder-width apart and your body almost side-on to the target. The forearm supporting the rifle should be about 45 degrees out from the body and almost directly under the firearm.



FIG. 67. Shooting prone - Image: Gwyn Thurlow

Whenever possible in the field, use a rest (e.g., a tree, rock or your pack) to steady your aim from any position. Never allow the rifle barrel to rest against a hard object, or this will affect the accuracy of your shot. Instead, rest the rifle stock or your forearm against the object you use to steady your aim.

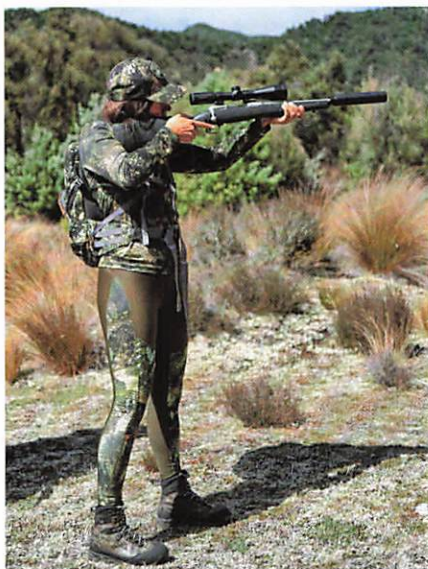


FIG. 68. Shooting offhand - Image: Mike Ng

Tips for Shooting Practice

- Practice shooting frequently, using the same load and projectiles you will use for hunting.
- Practice shooting at a variety of distances within your ability and considering the environment you will be hunting in.
- When sighting in, always use a rest, sandbags are ideal.
- All kinds of shooting practice will improve your aim and this includes shooting with a .22 rimfire with little recoil.
- When you are competent at firing prone, practice shooting in a variety of other positions that are more likely to be applied in the field (sitting, kneeling or standing).

Dry Firing

At home, practice picking up your rifle and aiming it. Practice until it becomes almost instinctive and the rifle seems to automatically take up the best position against your shoulder and the sights come naturally up to your eye. Then with an empty chamber you can practice dryfiring. To protect the firing pin, it is best to use 'snap caps'. These inert or 'dummy' rounds have a spring loaded or rubber primer to give the firing pin something to hit, thereby reducing wear. You need to buy snap caps of the same calibre as your rifle. When dryfiring, follow the principles of breath control and follow through described below. Keep working at dry firing until you can take up your rifle, aim at a given spot and squeeze the trigger while holding the aim and are confident that you would have hit the same spot every time.

You will be aware that it is an offence and unsafe to point a firearm at any person. Additionally, it is absolutely vital that you ensure your firearm is empty of any live ammunition before you begin practicing.

Practice only in a place that will not alarm or endanger others (e.g. your neighbours).

Squeeze the Trigger

When firing a shot, gently and steadily squeeze the trigger to minimize the chances of an inaccurate shot. Don't pull the trigger as this will affect accuracy. Touch the trigger with the end pad of your finger or first crease/joint, which is quite sensitive and gives you good control. Practice trigger control until it is second nature.

Breath Control

Breathing in and out can affect your accuracy due to movement of your chest, especially when you are breathing heavily. Be aware of this when climbing and take a break to lower your breath and heart rate before arriving at any likely spot such as a slip, clearing or open country.

Breathing needs to be controlled before taking a shot:

- Breathe in as you begin to come up to a sighting position.
- Let out your breath slowly as your aim begins to line up with the kill zone on the animal.
- Then begin to squeeze the trigger. When you have let your breath half out, pause for a moment.
- When your aim is steady, continue squeezing the trigger to fire the shot.

The Follow Through

Following through means that you continue to hold your aim for a moment after the shot and watch the animal.

Draw another breath while evaluating whether a second shot is required. Usually, your animal is either down or you have missed it and it is running away or it could be mortally wounded so you need to watch where the animal goes. More detail on taking note of where the animal is after being shot described in Chapter 7: Hunting Techniques.

Shooting at Running Game

Shots at running game using rifles are high risk, potentially unsafe, unethical and risk wounding animals. When you aim at a running animal using a scope you will lose peripheral vision and the ability to check your firing zone. For these reasons they are not recommended.

The running shot using a shotgun is an acceptable method for small game or pest control (e.g., wallabies, rabbits, hares). This is generally recommended for more experienced shooters (not novices).

Snap Shooting

Snap shooting is when a hunter sees an animal, loads the firearm, aims at the animal and then pulls the trigger all in one movement. Snap shooting

is not recommended as there is a risk of wounding the animal, or a complete miss. Snap shooting is also extremely unsafe and has been the cause of incidents where one hunter has shot another, because they have not taken the time required to positively identify their target.

One Eye or Two?

Keeping both eyes open increases your peripheral vision and allows for better situational awareness. You need to focus on the target and not the reticle or dot. Using one eye only by closing the non-shooting eye is usually more accurate for most shooters, but you lose vision on the closed eye side. Some hunters keep both eyes open when shooting, this takes a lot of practice to become proficient.

Shooting Uphill and Downhill

Shooting uphill or downhill changes the effect of gravity on the projectile compared with a horizontal shot. This can cause you to shoot over top of the target with either an uphill or downhill shot particularly at longer distances. Most rangefinders can give you true ballistic range (TBR) which is the distance after compensating for the up or downhill angle. Tables are available to provide the right amount of adjustment you need to make for each type of ammunition.

Kill Zones

Kill zones are areas of the animal containing vital organs and where an accurately placed shot will ensure the animal is killed ethically. The primary kill zones are the head (brain), the neck (spine), and chest or shoulder (heart and lungs).

A shot should only be fired at game when you can positively identify the animal and its kill zone. This will require you to see the head, neck, and shoulder all at the same time by doing this you have the best chance of positively identifying the target and the animal's kill zones are in view. Never guess where the kill zone may be when you can only see a small part of the animal in the bush.

When the animal is quartering towards or away from you, be careful about placing your shot so that it will kill cleanly. Having a good knowledge of the animal you are shooting and its anatomy will ensure you know where the shot will penetrate and kill ethically.

Although head shots are effective kill shots, they are risky because the brain is a small target and there is the potential to wound the animal without killing, causing it to suffer unnecessarily.

Neck shots at longer ranges are not recommended however they can be effective at much shorter ranges for example in bush environments. An accurate neck shot will hit the spine and the animal is immediately incapacitated.

If an animal is presenting a view of its back, a spine shot between the shoulders can be effective. This shot immediately incapacitates the animal by hitting the spine along with vital organs. Even if it goes to one side while still at the height of the shoulders, your bullet stands a good chance of hitting shoulder and neck arteries and the lungs, causing a quick death.

Most Favoured Shot

The chest or shoulders (heart or lungs) offer the largest kill zone and are therefore the most favoured areas for shot placement to increase the chances of ethically securing the animal, especially at longer ranges.

When a deer is hit in the heart, blood circulation decreases and less blood exists in the body. Therefore, a heart shot deer may not bleed as much compared to a lung shot and the animal can run a long distance before expiring. A heart shot remains an effective and lethal shot.

With a lung shot, the wound causes the heart to beat harder, mainly due to the loss of blood pressure. As the body tries to compensate for the loss of blood pressure and continue supplying the brain with blood, the heart pumps harder. Whenever the heart beats faster, more blood is lost and the hunter has a better chance of finding the animal.

The simple rule of thumb is to aim for the lungs over the heart. The benefits of a lung shot are vastly improved compared with a heart

shot. The lungs also provide a larger target area that gives the hunter an easier shot when compared to the smaller sized heart.

The front on shot is aimed at where the neck and chest join. This area is a spot where nerves and major blood vessels are located which provides for a quick and ethical kill. Even if your shot goes a little to either side, there is a good chance of hitting the upper lung area and killing the animal.

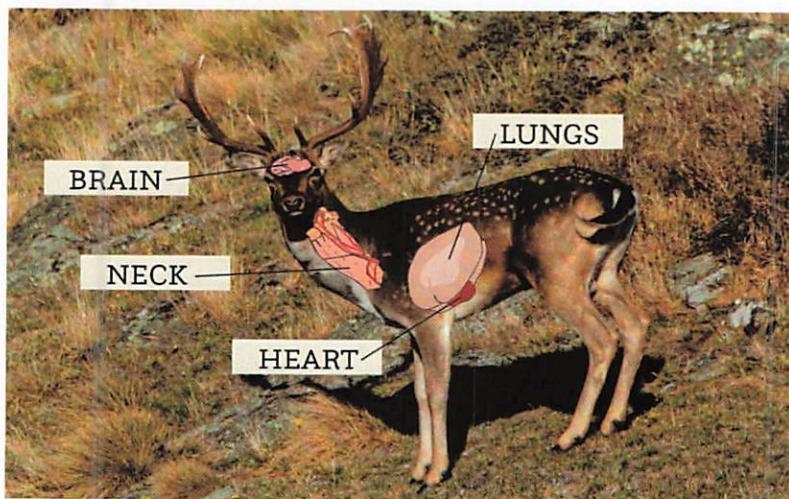


FIG. 69. Most favoured shot - Image: Greg Hill. Annotations: Erin Hewetson

The Wounded Animal

In the event of wounding an animal you have a responsibility to track, find, and dispatch the animal as quickly and humanely as possible.

Refer to Chapter 7: Hunting Techniques for more detailed information.

Chapter 5: Firearms Selection, Safety & Marksmanship

Ngā Kōwhiringa Pū, te Haumarutanga me ngā Pūkenga Pū

Key Learning Outcomes:

- Memorize and practice the 7 basic rules of firearms safety at all times.
- Explain the main legal and safety requirements when transporting and using firearms in the field.
- Explain the basic principles of bullet trajectory.
- Explain how to select a suitable rifle and calibre for hunting.
- Describe the basic performance of bullets based on weight, shape, construction and velocity.
- Describe the main factors that can affect rifle accuracy.
- Sight in a rifle.
- Explain how to improvise shooting positions in the field.
- Demonstrate how to clean and store a rifle.

Notes:

6 GAME ANIMAL SPECIES

Ngā Momo Kararehe Hei Patu i Aotearoa

There is a range of big game animal species available to hunt in New Zealand. Game animals can be found on public and private land in a variety of environments throughout the country, making them accessible to hunters of a wide range of experience and ability. All big game species have been introduced to New Zealand from other countries and were liberated in different areas. Each species has a specific geographic distribution, range, and habitat.

This chapter provides general information relating to hunting big game species in New Zealand but excludes small game animals such as rabbits, hares, possums, and game birds.

Deer

There are seven species of deer in New Zealand that are all from liberations of founding herds at specific locations throughout the country. New Zealand's deer species vary significantly in physical characteristics (e.g., size and antler formations), behavior and distribution which provides a diverse range of hunting opportunities.

The following describes general behaviours, characteristics, and considerations that apply to hunting deer followed by specific detail on individual species.

General Considerations for Hunting Deer

Feeding Behaviours

Deer usually feed in the early morning, late evening and into the night. Deer may feed throughout the day in less disturbed areas when food is scarce, or during winter when there is less daylight. During the middle of the day when not feeding, they will generally retreat into the cover of thick bush or scrub and bed down. These behaviours mean that you should generally hunt likely feeding areas such as slips and river flats during dawn and dusk, and hunt bush terraces and likely bedding areas during the day. Deer will seek shelter during periods of bad weather and look for food as soon as it clears, so hunting immediately after rain can be productive.

Hunting Deer

All deer species have an extraordinary sense of smell and hearing. This means it is critical to hunt into the wind, move as carefully and quietly as you can and take advantage of cover when possible. Deer are also colour blind, meaning your presence will not be given away by wearing blaze clothing.

Spring is one of the best times to hunt deer as new grass and young vegetation starts to grow in open feeding areas. Areas such as river flats, slips, and bush clearings are productive during this time. Later in spring, pregnant hinds will separate themselves from their yearlings. These newly independent yearlings can be less cautious and therefore easier to hunt. Deer generally give birth in late-spring or early-summer meaning mothers will have dependent fawns over the summer months. It is considered unethical to shoot a female deer with a dependent fawn. During winter, deer will favour warmer habitats such as north facing slopes at mid altitudes.

The mating season or rut is a popular time to hunt most deer species for those wanting to shoot a trophy stag or buck. This is because stags or bucks are much less cautious during this period, and some species can be located and attracted using different vocalisations (see below for specific detail on each species).

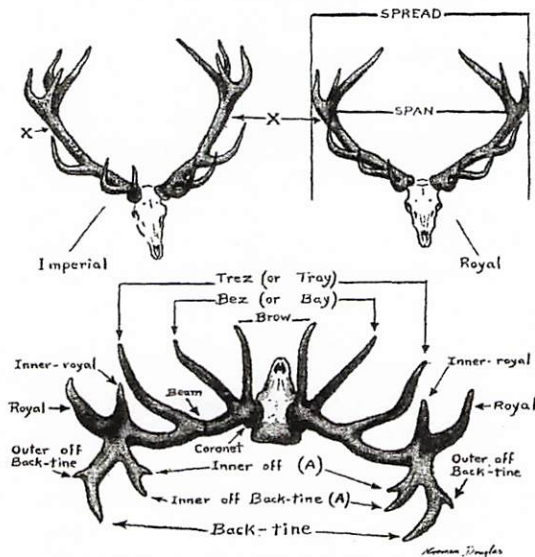
Antlers

Antlers grow on males and their size and shape are determined by genetics and feed. The first-year antlers on a male deer have two spikes, which is why they are called spikers and with each year of growth the antlers gain more points. Antlers are cast annually from the age of about 2 years old, generally in August-October after which velvet antler growth begins. Growth is usually complete by February after which the velvet is shed revealing hard antler. In areas where there is good trophy potential and management, it can be considered unethical to shoot a stag in velvet leading up to the rut. In the weeks prior to the rutting season, they will rub their antlers on trees within their territory to remove remaining velvet and stain them. Fresh antler rubbings on trees can therefore indicate a stag is living in the area.

The branches of the main beams of antlers are called tines and they have different names. See the diagram below:

RED DEER: SPREAD, SPAN and NOMENCLATURE.

(DOUGLAS SCORE)



Tines below X are collectively known as the RIGHTS.

Tines above X are collectively known as the TOPS, or SURROYALS.

FIG. 70. Douglas Score Handbook - Red deer antlers

Red Deer (*Cervus elaphus*)



FIG. 71. Red stag - Image: John Lumsden



FIG. 72. Red hind and yearling - Image: Peter Henderson

Red deer are the most common deer species in New Zealand and due to their wide distribution are accessible for hunting throughout the country. Most hunters consider shooting your first red deer as a significant personal milestone.

Red deer inhabit both private and public land from the Kaimai Ranges in the north to Stewart Island in the south. There are gaps in their distribution around Taranaki and parts of the Kaimanawa and Kaweka ranges where they have been displaced by sika deer. There are also small pockets of red deer in Northland, South Auckland, Coromandel Peninsula and Banks Peninsula. Red deer inhabit a wide variety of environments from alpine to forested areas and farm country.

Red deer are social animals, generally forming groups of hinds (females) and their young, with separate groups of stags (males) throughout most of the year. During the rut from late-March through April, male groups break up and individual stags mark out their territories and try to establish a harem of females. During this period, stags 'roar' periodically to maintain their territories, especially in the early morning and evening and will also thrash young saplings with their antlers. The red deer rut, or mating season, is referred to as the roar. The roar is a particularly

exciting time to hunt red stags as they can be less cautious and their roaring sounds make them easier to locate. Hunters can entice a stag to come in closer by imitating his roar, tricking him into thinking that you are a rival stag entering his territory.

Red deer stags will use wallows during the roar to cover themselves in mud, which helps spread their scent across the body and make them more intimidating to rivals. Stags will also use wallows to keep cool in the heat of summer.

Red deer are one of our largest big game animals, and a centrefire calibre of at least .243 is recommended. Generally, hunters will use a larger calibre such as a .308 or .270.

Important Considerations During the Roar

The roar is a very popular time to hunt. This means there are more hunters in the hills so there is a greater risk that one hunter may shoot another. This means special attention should be given to:

- Positively identifying your target beyond all reasonable doubt.
- Being aware that two hunters may roar at each other, thinking they are a stag.
- Establishing boundaries for hunting areas between all party members.
- Being aware of other hunting parties in the area.
- Identifying yourself as a human by wearing blaze.

This applies equally to the rut periods of other deer species.

Fallow Deer (*Dama dama*)

The Four Colours of Fallow Deer



FIG. 73. Common buck - Image: Jamie Bonis



FIG. 76. Leucistic buck - Image: Greg Hill



FIG. 74. Menil Spiker - Image: Sue Goldfinch



FIG. 75. Melanistic doe - Image: Ross Blackwell

Fallow deer are the second most widespread species and can be found in most regions of New Zealand. They generally inhabit forested areas and broken farm or scrub country but can be found in the tussock tops in some areas of the South Island. There are well established historic herds at Woodhill Forest (Auckland), Wanganui, Blue Mountains (Otago), and in the Greenstone-Caples Valleys (Otago).

Fallow deer are smaller than red deer, have a range of skin colourations from chocolate brown to creamy white, and mature males (called bucks) have characteristically palmated antler tips.

Fallow deer are social animals and females (called does) and young males form groups. Older bucks also form small groups through most of the year. Males and females will come together during the rut from late-April to early May. During the rut, fallow bucks croak and mark out scrapes to establish their territories. Females are attracted to the males rather than males establishing a harem as with some other deer species.

Fallow bucks can be very aggressive with each other and have also been known to displace red deer populations. They can be quite vocal and will bark and stomp their feet when disturbed, often giving away their location. Fallow deer have a broad diet, eating a wide range of plants and fungi in both forested and open pastured areas.

Calibres of .223 and above can be used for hunting fallow deer although .243 and above is recommended.

Sika (*Cervus nippon*)

Sika deer are only found in the Kaweka and Kaimanawa ranges of the central North Island. They are a particularly difficult animal to hunt as they are elusive and extremely wary. This makes hunting sika both very challenging and rewarding. Sika can be found feeding in both the bush and open tops.

Sika deer are smaller than red deer with some differences in skin colouration. Sika antlers are typically smaller than those of red deer, often have a more uniform shape and generally have no more than 8 points including brow tine, trey tine and tops.



FIG. 77. Sika Stag with summer coat - Image: John Lumsden



FIG. 78. Sika Hind - Image: Daniel Peat

Sika deer live in groups of separate sexes for most of the year until the start of the rut in late March when males will travel to establish their own territory and a harem of females. During the rut, sika stags will mark their territory with scrapes and thrashing of young saplings with their antlers. They will also make a characteristic 'hee-haw' call. Like the red deer roar, the sika rut is a very popular time to hunt as calling sika stags in can be exhilarating.

When hunting sika, extra care needs to be taken to move slowly and quietly, while paying attention to the wind direction. Sika can be very curious often trying to circle a hunter to cut their scent, or just standing and watching out of sight. Sika deer are very vocal and both sexes will make a shrill whistling sound when alarmed.

Calibres of .243 and above are recommended for hunting sika deer.

Whitetail (*Odocoileus virginianus borealis*)



FIG. 79. Whitetail doe and young male - Image: Peter Henderson



FIG. 80. Little grey ghost - Image: Greg Hill

New Zealand has the only herds of whitetail deer in the southern hemisphere. Herds are located in the coastal fringes of Stewart Island and in the lower reaches of the river valleys at the head of Lake Wakatipu near Glenorchy.

Antlers on whitetail bucks are smaller than most other deer species, curving forward with no brow tines. Females and their young live in small family groups while males generally live on their own until the

rut starting at the end of April. Whitetail bucks do not call as much as other deer species during the rut, but can occasionally be heard making a 'honking' sound. They will establish territories by marking trees with their scent, and do not establish a harem of females but stay with just one female while she is in oestrus (ready to mate).

Whitetail are extremely wary and are generally considered the most challenging deer species in New Zealand to hunt, hence their nickname 'the grey ghost'. Care needs to be taken with regard to your noise and scent when hunting them, especially in the thick bush and undulating terrain of Stewart Island which is noisy and can have swirling winds. More so than other deer species, whitetail have defined feeding habits and will often return to the same feeding spot at the same time of day. A good strategy for hunting whitetail can be to find a place where they have been moving through or sign has been found and sit and wait.

Whitetail are a smaller deer species, so calibres of .243 and above are suitable for hunting them.

Wapiti/Elk (*Cervus canadensis*)



FIG. 81. Wapiti bull - Image: Fiordland Wapiti Foundation



FIG. 82. Wapiti cow from Charles Sound - Image: Gwyn Thurlow

Wapiti or Elk are the largest deer species in New Zealand and the second largest deer species in the world after moose. They are distributed through Fiordland between Charles Sound in the south to the Sutherland Sound in the north. This is the only wild Wapiti herd in the southern hemisphere. Access to hunting Wapiti is managed through a block ballot

process during the rutting period. Information about Wapiti blocks can be accessed via the Fiordland Wapiti Foundation or DOC websites. There are strict conditions around ballot entry including means of access to some areas, so you need to be familiar with these before applying.

Wapiti have some similarities with red deer although they are significantly larger and have a more cream coloured coat with a distinctive rump patch. Antlers on bulls are similar to red deer but can grow much larger and heavier (up to 1.3 m long), reaching a maximum size at about 8 years old. Many would consider a mature Wapiti bull to be the ultimate trophy for a New Zealand hunter.

Wapiti and red deer regularly mix and hybridise, which can lower the trophy quality of wapiti bulls. The Fiordland Wapiti Foundation and DOC run a joint programme to manage the effects of wapiti and red deer in Fiordland to improve conservation outcomes and maintain the wapiti herd. Initiatives include controlling the numbers of red deer to preserve the quality of the wapiti herd and educating hunters about animal selection when shooting wapiti trophies. There is emphasis on identification and targeting bulls of a minimum 6 years of age, but preferably over 8 years old.

Wapiti share similar social and feeding behaviours to red deer. They will inhabit the open tops, slips and clearings as well as thick bush, providing a range of hunting environments. A distinguishing feature of wapiti is the vocalisations made during the rutting season from mid-March to late-April. This is a high pitched 'bugle' rather than a 'roar', with hybrid red-wapiti deer making a combination of these noises. A bugling horn can be used for calling in wapiti during the rut.

A wapiti hunting expedition is a serious undertaking. They live in unforgiving, steep, and heavily forested terrain in areas which experience extreme weather conditions. This means you should have a high level of fitness and back country experience and the right equipment before considering a wapiti hunt.

Calibres of .308 and above are recommended for hunting these large animals.

Rusa (*Cervus timorensis*)



FIG. 83. Young rusa - Image: Cam Henderson



FIG. 84. Rusa stag - Image: Unknown

Rusa deer have the smallest range of all New Zealand deer species, located within the Kuhawaea (Galatea) faces of Te Urewera in the central, eastern North Island. They are well adapted to the steep scrubby habitats of this area. Access to hunt rusa deer is through permitting from Te Urewera Trust.

Rusa are slightly smaller and darker in colouration than red deer. Stags have heavy set antlers that only grow to six points. Antlers in rusa deer are cast later than other deer species in December to January, and typically harden by the end of May.

Rusa live in small groups and have relatively small home ranges. They are very wary and spend most of their time in thick cover, often only moving out into the open to feed at night. The rut period starts from mid-July, where males establish a harem of females and will wallow and mark their territories with scrapes and scent. During the rut, stags vocalise with infrequent husky growls.

Hunting rusa is very challenging as they favour dense bush habitats and steep terrain. It is important to move very slowly and look carefully to identify them in thick cover. During winter, rusa will favour warmer areas that catch the sun. Staking out these areas and waiting for the deer to move can be productive.

A calibre of .243 or larger is generally recommended for hunting rusa.

Sambar (*Cervis unicolor*)



FIG. 85. Sambar spiker - Image: Dylan Higgison



FIG. 86. Sambar stag - Image: Dave Galloway

Sambar deer are considered an iconic herd in New Zealand. They are found only in the Manawatu-Wanganui and Bay of Plenty Regions of the North Island. They are mainly found on private land such as forestry blocks, but can also be found in low numbers on some public land reserves.

Sambar are the second largest deer species in New Zealand after Wapiti. They have coats darker than red deer and have short, heavily bearded antlers with a maximum of six points.

Sambar form small groups of young males and females with their young, while older males are solitary. Single females are attracted to stag's noises and scent at the start of the rutting period in late May through to December. Stag vocalisations are limited to a short harsh belling sound that is heard when the animal is alarmed.

Sambar deer are very wary, feeding mainly at night and seeking cover in thick scrub or bush during the day. Sambar will create complex trail systems that will connect their bedding and feeding areas.

Sambar deer are very challenging to hunt due to their elusivity and tendency to feed at night. During the day, sambar will often sit tight in cover and remain undetected until the hunter is very close. When spooked, sambar often won't run far and will make a honking noise which can be followed carefully to track them. The best way to hunt

sambar during the day is to walk a few paces, stop, and use binoculars to scan at a close distance.

High energy calibres of .270 and above are recommended for hunting these larger animals.

Alpine Species

There are two big game animals in New Zealand that are generally considered alpine species: the tahr, and the chamois. Both species are appealing to hunters due to the spectacular terrain they inhabit and the challenges of hunting them in their extreme environments. They are highly sought-after trophy species and New Zealand is one of the few places with relatively unrestricted hunting opportunities for them.

Himalayan Tahr

(*Hemitragus jemlahicus*)

The Himalayan tahr are an iconic big game species in New Zealand, which is one of the only countries in the world they can be hunted free range. They belong to the same family as sheep and goats, and have specific adaptations for the alpine habitat of their native home in



FIG. 87. Tahr bull - Image: Hayden Breakwell

the Himalayas. They share some physical characteristics with goats, although are slightly larger in stature. Both males (called bulls) and females (called nannies) have horns that almost touch at the base and curve outwards, horns on females are considerably smaller than on males. On larger males, horns will start to converge at the tips, and can measure over 30 cm (12 inches), which is generally considered the benchmark of a trophy bull tahr.

In winter, mature bull tahr have a spectacular blond mane which can extend from the neck to halfway down the mid-section. This makes the pelt a prized trophy along with the horns.

Tahr distribution extends through the central Southern Alps from the Rakaia River in the north to the Young Range in the south. They generally inhabit alpine country where there is a mix of tussock, scrub, steep rocky bluffs and scree, but can be found in lower scrub country especially through parts of their range on the West Coast.

Tahr are social animals and form distinct groups that come together during the start of the rut in May. The first type of group consists of nannies, kids, and young bulls up to two years old, the second consists of immature bulls of two to four years of age and the third being mature bulls older than four years of age. During the rut, mature bulls will establish a harem of females and defend their harem from other bulls.

Tahr generally feed at high altitudes in alpine grasslands and scrub country. During the middle of the day, they will rest among rocky outcrops at higher altitudes. They will descend in the late afternoon to feed before ascending to their resting sites in the evening. In heavily vegetated areas such as South Westland, the reverse behaviour is seen. Tahr will rest in lower bush country and ascend to feed in tussock country or move horizontally to feed on open slips.

Tahr are tough animals with thick coats, especially larger bulls, and the terrain they inhabit often requires longer range shooting of 200m or more. This means high energy, flat shooting calibres of .270 and above are generally recommended for hunting them. Care needs to be taken with shot placement on bull tahr as their large manes can obscure their kill zones.

When tahr hunting, special consideration needs to be given to your equipment, your level of experience, fitness, and training. Tahr country can be steep, unforgiving and weather extremes can be experienced that usually include snow and ice in winter. Good footwear and warm,

layered clothing are essential. You should never hunt above the snow line on your own and training should be undertaken for how to travel in alpine conditions.

When hunting tahr, binoculars are essential to glass large areas and locate the animals. A spotting scope is also useful for assessing the trophy potential of bulls from long distances. Once you have located them it is important to plan your stalk carefully, as tahr have excellent eyesight. They tend to only look down for danger, so an approach from above is preferable where possible. Due to the steep terrain they inhabit, an important consideration when tahr hunting is whether the animal can be recovered once it has been shot.

The rut, from May to July, is a popular time to hunt tahr. This is when the bulls start to develop their thick trophy coats, and they are easier to hunt as they are distracted by nannies. During spring, tahr are lighter in colour so can be easier to locate, and they also tend to be found at lower altitudes feeding on new growth in the valleys.

There are seasonal ballots for helicopter landing access into tahr blocks of the Hooker-Landsborough and Adams Wilderness areas during the rut which can be applied for through DOC.



FIG. 88. Tahr nanny and kid - Image: Richard O'Driscoll

Chamois (*Rupicapra rupicapra*)



FIG. 89. Chamois buck with winter coat - Image: Gwyn Thurlow



FIG. 90. Chamois doe with summer coat - Image: Shane Hall

Chamois are another sought after alpine species. They belong to the same family as goats and antelope and are native to the mountainous regions of Europe. They are generally smaller than tahr with slender black horns that rise straight up and curl backwards to form sharp hooks. Males (called bucks), have thicker horns and the hooks are more strongly defined. Horns of 9 inches and above are considered a representative trophy size. Chamois are dark brown to black in winter and blonde to tan coloured in summer, with a characteristic 'masked' black and white face.

In New Zealand, chamois are found throughout the high country of the South Island from Marlborough through to Fiordland. They inhabit a diverse range of mountain environments and are well established in the lowland forests of the West Coast. The highest numbers of chamois are found in mid- to north-Canterbury and the central West Coast. Chamois are commonly found in the same habitats as tahr, although they do not tend to mix and will feed away from each other.

Chamois form social groups of females (called does), young males, and kids for most of the year. Older males are generally solitary for most of the year until the rut, starting in early May, when they will seek out a harem of females. Lone males can range long distances to find females prior to the rut.

Chamois have an exceptional sense of smell and eyesight so approaching them out of sight and downwind is one of the most important

considerations when hunting them. It is important to glass well ahead to locate animals before they see you. They tend to sit on lookout points like rocky outcrops, or spurs in open basins where they have an expansive view to watch for danger. On the West Coast, chamois inhabit the lower altitudes and are commonly found in creeks, slips and clearings in similar habitats to red deer. Flat shooting, high energy calibres of .243 and above are generally recommended for hunting chamois.

The rut is the most popular time to hunt chamois bucks as they are preoccupied with females so can be less cautious, and at times can also be very curious. This is the time that they start to develop their winter coat which also makes a nice trophy. Late summer is also a good time to hunt chamois when alpine weather is more settled and their tan coats can make them easier to see from a distance.

Feral Goats (*Capra hircus*)



FIG. 91. Billy Goat - Image: Jared Parker



FIG. 92. Wild goats - Image: Peter O'Driscoll

Feral (or wild) goats are found in a wide range of habitats across New Zealand from farmland, forested hill country and steep alpine terrain. They are particularly abundant through Taranaki, Hawke's Bay, Marlborough, and Otago. Their abundance and widespread distribution makes them a common first big game animal for many new hunters.

Goats can range in colour from brown, white and black to different combinations of these. Their coat pattern and length varies depending on their breeding origins. Both sexes have horns that curve upwards and backwards but are larger and spiral outwards in males.

Goats form large social groups of mixed age and sexes, they also feed on a wide variety of vegetation which enables them to inhabit a range of different areas. In summer they tend to feed early in the morning and in the evening and then find shade to ruminate during the day. In the shorter days of winter they may also feed throughout the day. Goats are sensitive to changes in weather and will move around a lot in response to weather changes, however their daily behavioural patterns are less routine than deer.

Goats are generally easier to hunt than deer as they are less wary and can be quite inquisitive if they notice you but can also be alerted more easily in areas with high hunting pressure. A recommended strategy for hunting goats is to glass open areas and then plan your stalk. When hunting goats, the same basic principles of stalking used for deer should be applied. Goats can be quite vocal and will call to locate each other, this often helps you find them. They also have a very pungent smell which means you can initially locate them by their smell. When hunting goats for meat, younger nannies are preferred when compared to billies as the males have a strong odour that carries through into the meat. When alarmed, goats will make a sneezing sound to alert other animals in the mob, usually meaning they will move away.

It is recommended that centrefire calibres of .223 and larger are used for hunting goats.

Feral Pigs (*Sus scrofa*)



FIG. 93. Feral Pigs - Image: Grant Botting



FIG. 94. Wild boar - Image: Chris Palfy

Feral (or wild) pigs can be found around the extent of the North and South Islands as well as Great Barrier Island and the Chatham Islands. Pigs can carry bovine tuberculosis so it is important to be aware of the risks associated with transmission in some areas.

Pigs can be found in a wide variety of habitats from farmland, forestry, lowland forest, scrub country, and alpine areas. Pigs are omnivores and have a broad diet ranging across grasses, roots, seeds, animal carcasses, worms and insects.

Pigs live in mobs of all ages and both sexes, although larger boars and sows with litters are often found alone. Pigs can be quite active during the day, but may be more nocturnal or active at dawn and dusk in areas of high hunting pressure. In areas of abundant food and cover, pigs occupy a relatively small home range but will cover a larger area if food is scarce or they are disturbed.

Pigs have poor eyesight but have exceptional smell and hearing. They can be challenging to hunt on foot with a rifle as they are often found in thick cover, making it impossible to approach them quietly. Stalking and glassing open areas in the same way as hunting for deer can be productive. Pigs often feed actively after rain when the ground is softer enabling them to dig or 'root' the soil to forage for food and this can be a good time to find them in the open. Digging or 'rooting' is a characteristic sign of pigs, and the 'freshness' can be used to determine how close you might be to them.

Pigs have very tough skin and boars develop a thick shield over the shoulder which means that high energy calibres of .270 and above are generally recommended for pig hunting. Lever action calibres of .357 and .30-30 with open sights are popular with hunters using dogs as they are shorter and lighter to carry in the bush.

Boars grow tusks that vary in size depending on genetics and nutrition. Boars will grind their tusks to keep them razor sharp and these are used for defense. If cornered, wild boars can be very aggressive. The jaw with tusks intact is considered a 'trophy' for pig hunters.

A traditional and popular way to hunt them is using pig dogs that are specifically trained to track pigs through scenting, then bail or

hold the pig until the hunter arrives. It is important to check your hunting permit for conditions relating to dogs and ensure there has not been recent pesticide activity. When hunting with dogs, all efforts should be made to find and dispatch the pig as quickly as possible to uphold ethical practices.

Feral Sheep (*Ovis aries*)



FIG 95. Chatham island wild sheep - Image: Tom McCowan

Feral (or wild) sheep can be found around New Zealand on private property and on public land in some places. In the North Island they can be found in the Mohaka and Ngaruroro River valleys in the Kaweka Forest Park. In the South Island they are in the Wairau, Clarence, and Waimakariri Rivers, as well as the Waianakarua Reserve, Waipori Gorge and Hokonui Hills. There are also famous herds on Arapawa, Chatham and Pitt Islands.

Feral sheep can be found in a range of habitats from rough pasture to forest and broken scrub country depending on their location. They are grazing animals and feed throughout the day on pasture and herbaceous plants. Females (called ewes) will stay with their young, and males (called rams) will form small groups when not in breeding season.

The trophy for feral sheep is the horns which curve back and spiral outwards for up to two turns. Horns can vary in size and shape depending on nutrition and breed.

Feral sheep can form large flocks which can collectively be very wary, so it is important to hunt and approach them cautiously. Feral sheep are much more wary than domestic sheep and when disturbed will run for cover, where domestic sheep would normally run into the open. Males often live in groups, so when hunting for a trophy ram take your time to select the best head from the group.

Sheep can have thick fleeces, so high energy calibres of .243 and above are recommended for hunting them.

Wallabies

Dama Wallaby (*Macros eugenii*)



FIG. 96. Dama wallaby - Image: Rotoiti Community Association

Dama wallabies are the smaller of the two wallaby species in New Zealand and can be found in the Rotorua lakes region. They prefer farm edge habitats where there is dense vegetation such as native bush or forestry close to grassy feeding areas.

Bennett's or Red-necked Wallaby (*Macropus rufogrisus*)

Bennett's wallabies are considerably larger than the Dama wallaby. They are distributed throughout South Canterbury centered around the Mackenzie Country, however their range is expanding rapidly. They can be found in pasture and tussock country extending into the alpine zone in areas where there is scrub for cover. Wallabies can be hard to spot, so using binoculars to carefully glass for them in open country is recommended.

It is best to hunt wallabies in the early morning and late evening when feeding, they may also be hunted during the day by flushing them and shooting at short range. Lighter centrefire calibres of .222 and above are recommended for hunting both species of these smaller game animals.

Permits and Ballots for Hunting Big Game Animal Species

New Zealand's game animal species can be hunted on both private and public land. On private land you must have permission from the landowner and controlling authority, such as the farm manager or a forestry company. To hunt on public land, you must have a permit from the Department of Conservation or the regional management authority (e.g., a regional council). In all cases it is your responsibility to ensure you have the appropriate permit or permission to hunt in your chosen area, and to understand any conditions. A good starting point for finding out about permits for Department of Conservation managed public land is to contact the local DOC office closest to your chosen hunting area.

Hunting areas for some game animal species are managed by block booking and permitting systems administered by DOC or another controlling authority.

Some examples of the booking systems for different areas and species are shown below and you should research whether any of these systems apply to your chosen hunting area at a given time. Note that permit systems are not limited to those below.

Red Deer

- Ballot systems apply to some public land areas during the roar period, generally from the last week of March to the last week of April. For example, the Haast roar blocks on the West Coast of the South Island.
- Te Urewera Trust issues permits in their area.

Fallow Deer

- Ballot block systems apply to fallow deer hunting in the Blue Mountains Forest Conservation Area and the Greenstone/Caples Recreational Hunting Area in Otago.
- Permits for hunting the Woodhill Forest fallow deer herd, near Auckland, are managed by the Woodhill Forest Management Council. www.fallowdeer.co.nz

Sika

- Many sika hunting areas in the Kaimanawa and Kaweka ranges are on private Māori lands, and permits can be issued through Helisika www.helisika.co.nz on behalf of Tangata Whenua.

Chamois

- There are no ballots for chamois.

Whitetail

- Hunting whitetail on Stewart Island is managed through a block booking system administered by DOC and the Rakiura Māori Lands trust www.rmlt.co.nz, depending on the block.

Wapiti

- Access to hunt Wapiti in Fiordland during the roar/bugle is administered by the Fiordland Wapiti Foundation. www.fwfnetnz

Rusa

- Access to hunt Rusa in the Galatea area of Te Urewera is managed by the Te Urewera Trust.

Sambar

- Sambar are often hunted in forestry blocks with access controlled by the forestry company. For example, in the Manawatu region hunting Sambar in the Santoft Forest is managed by Earnslaw One Limited. www.earnslaw.co.nz

Tahr

- During the rut period from May through to July, DOC manages access to landing sites within the wilderness zone of the West Coast and South Westland.



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Chapter 6: Game Animal Species

Ngā Momo Kararehe Hei Patu
i Aotearoa

Key Learning Outcomes:

- Name the 7 deer species in New Zealand and give the regions they are found in.
- Identify the 7 deer species from photographs.
- Explain the seasonal behaviour of red deer and one other favoured game animal in your region.
- Describe 3 primary differences between red deer and one other favoured game animal in your region.
- Describe what constitutes a trophy set of antlers for one favoured game animal in your region.

Notes:

7 HUNTING TECHNIQUES

Ngā Rautaki Whakangangahu

To become a proficient and successful hunter it is important to gain experience by going hunting.

In this chapter you will find some tips to help you gain knowledge of hunting skills and locating game animals. When you have only limited practical experience or are hunting in an unfamiliar area hunting can be challenging. Hunting books can help to give you further background and knowledge. Knowledge can also be gained through membership to hunting clubs such as NZDA, participation in club trips, and talking to other more experienced hunters.

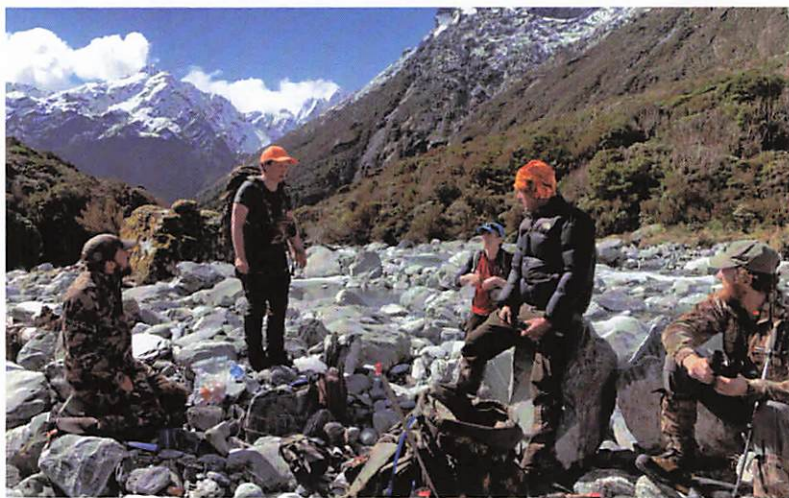


FIG. 97. Making agreed plans is important on group hunts - Image: Tom McCowan

Considerations when Hunting

There's a saying that *'deer are where you find them'*. This means that game animals can be encountered anywhere so be constantly vigilant, staying alert as soon as you enter your hunting area.

Before you go into the backcountry, check out the area on a map including likely habitats, main trails, rivers, huts, and ridge lines to reach alpine basins.

When you arrive to a new hunting area it may be late in the day. If there is daylight left, take your hunting gear and go for a walk. You should be looking for promising areas, always giving consideration for wind direction while working out the best approach routes and getting familiar with them for the next day. Use your binoculars regularly, checking river flats, grassy slips or any other likely locations.

When planning a hunt, you should always stalk into the wind so that the animals won't smell you. Big game animals have an extremely acute sense of smell and will instantly alert the moment they catch the tiniest hint of human scent, often while hundreds of metres away and long before you see them. Be prepared for wind that can suddenly shift direction and have an alternative plan. You can sometimes smell game if you are downwind of them.

Animal sign might be found at a specific level along a hill face, showing that animals may be concentrated around this particular level. Travelling at about the same altitude is called 'sidling' (an abbreviation of what used to be called 'side-hilling') and can be quite productive.

Some places are heavily hunted and the animals tend to be more wary. It might be better to look for a less accessible area or one that requires an overnight trip, so plan for this by looking at your map beforehand. This might even be a side creek that most walk right past.

Setting up a tent camp close to your hunting area will enable you to have more hunting time. You will be away from the main trails, huts, and other users which allows you to be on the spot when you need to be. Find a suitable camp away from the area you are going to hunt (it might be 1km away) and early evening or morning you can be back to that area when there is a high chance of seeing game. Be aware of lighting a campfire as the smoke could alert game in the vicinity.

What to Look For?

As you are quietly walking along, be observant, listen, and pay attention to your surroundings. Look ahead and use your binoculars regularly to search for and identify anything that could be an animal.

Look for patches of palatable plants, signs of browsing, droppings, game trails, fresh hoof sign, or tree rubbings. You may also find 'beds' which are places in the grass or leaf litter where animals have rested during the day while chewing the cud. Animal tracks will show in early morning wet grass. You may find a wallow at certain times of the year which animals have been using recently. Around the wallow you may see fresh tracks or freshly splattered mud on the ground, indicating an animal could be close by.

If the season is colder, animals may go to a more sheltered and sunny north face. If the season is growing warmer, they may move higher or over a ridge to a shaded area during the heat of the day. Remember this place, the current season and time, because it might be worth taking another look in a few months' time. Record a diary of things you see as it might be worth going back to that spot at around the same time next year.



FIG. 98. Red stag wallow - Image: Peter Henderson

Game animals have daily and seasonal routines. This is where some book learning can be useful as you discover the particular habits and preferences of the species you're hunting (see Chapter 6). This can include what they like to eat, where their preferred food grows and where they sun themselves during the day or where they feed at night. Deer need to eat about 100g of food for every kilogram of body weight daily and they will always seek areas where food is more abundant. Deer will move to a sheltered place if a storm is coming, or a hiding place if frightened. During the day deer will move to a safe resting place that is warm in winter or cool in summer where they can chew their cud while watching for danger.

By understanding a deer's habits, this will improve your chances while hunting.

During the day, deer species other than whitetail are normally bedded down in a spot where they feel secure. After they have been out early for a feed they will lie up quietly until the evening when they will then head out to feed again. Deer will only move about during the day if food is scarce and they need to feed again or if they have been disturbed, however always remain vigilant as you can never be certain when you may encounter an animal.



FIG. 99. Stag rubbing - Image: Peter Henderson

Feeding Habits and Daily Behaviours

Deer can start feeding well before daybreak, browsing small amounts at a time of shoots, grasses, leaves and twigs from a variety of palatable vegetation.

If food is scattered or scarce, deer may continue feeding till after daybreak therefore the best time to hunt is early morning. It is important to be up before daylight and walk by torchlight to where the deer may be feeding. When it is light enough to see clearly through your binoculars or through your telescopic sight, you can begin hunting. Move as silently as possible, placing every step carefully and making use of cover to hide behind. Move short distances at a time, stopping regularly to look and listen. A deer standing in the shadows is hard to see so use your binoculars.

Animals tend to feed early then bed down for the day. Deer ruminate (chew their cud) like cows during the day, bringing up the feed they have swallowed in the morning, chewing it again, and then swallowing it for further digestion. By getting to your hunting area before daybreak you are more likely to find animals that are still active and have not yet bedded.

In hot weather deer may move up higher and also move short distances again during the day to avoid the sun. Deer do not like windy conditions and will take shelter from the wind. If the conditions are foggy or misty deer tend to feel a false sense of security and will stay out to feed for a longer period of the morning.

Hunting in Bad Weather

Wet and windy weather can disrupt deer's usual pattern of feeding behaviour and they will seek cover until it passes. As soon as the wind and rain die down the deer will often move out to feed, regardless of the time of day. They will be wet from the rain and if the sun breaks out, will want to dry and warm themselves, so hunt the sunny faces and clearings.

After the rain, you are less likely to alert deer because the rain can reduce the sound of you walking and it helps to cover your scent. A particularly

good time to hunt is when overnight rain eases off at dawn or soon after daybreak, because by daylight the deer are extra hungry and may stay out in the open to feed longer.

Bush Hunting

Beech and podocarp forests make up the largest area of bush hunting country in New Zealand. Hunting open forest with little undergrowth is physically easy but you are less likely to see deer because of the lack of feed. Deer may pass through open forest leaving game trails to their feeding areas, so it can be a good idea to follow these.

Focus hunting efforts on areas where shrubs and smaller trees such as broadleaf, punga, toētoē, and five-finger are found. It is difficult to move quietly here, especially if there are thickets of bush lawyer and supplejack, but these areas provide both feed and cover for deer. These areas of thick cover are often found in creeks and gullies.

When hunting thicker bush areas, stalk quietly and stop regularly while looking and listening. If you see fresh browsing or droppings, slow down and take extra care as deer may be nearby. You may only see part of the deer such as an ear or part of the head. It is a good idea to use your



FIG. 100 Bush Hunting - Image: Susanne Lang

binoculars to identify exactly what you are seeing. Be patient, as it is important to positively identify the animal by sighting the head, neck and shoulder all at the same time.

It is often impossible to move quietly in dry forest, so you have to expect that the deer will hear you first. Unless they additionally see or smell you, they may not be alarmed as they are used to hearing sounds of other animals in the bush. While on the move, deer usually travel in a line one in front of the other and sometimes spaced well apart.

Commercially harvested forest areas offer good hunting because often you will have access to the hunting area exclusively. Hunting on the old skid sights, trails, tracks and clearings gives you good opportunity to find deer and pigs.

Hunting River Flats, Slips and Clearings

River flats, slips and clearings are key feeding areas for deer, especially in spring when there is new growth of grass and plant shoots. The best time to hunt these areas is during the first and last hour of daylight. It is a good idea to familiarise yourself with the location of these areas and work out the best way to approach them, taking the wind direction into consideration. When approaching river flats, slips and clearings, move slowly and do not walk in the open, using the bush edge to conceal your presence. Another strategy can be to find a good vantage point where you can sit and watch for animals using your binoculars as they move into a clearing for food. Concentrate your hunting into areas where there is an abundance of sign, indicating where deer have been moving and feeding.

Hunting in Open Tops

When hunting the open tops, make sure you arrive just before daybreak or dusk so that you can use your binoculars to search for animals. Find a good vantage point where you can see a lot of likely terrain to sit and 'glass'. Look for areas of fresh growth where animals are likely to feed, other likely terrain includes north facing slopes, bush edges, scrubby gullies, and grassy slips. Once you have spotted an animal,

plan your stalk while giving consideration to your shooting distance, wind direction, available cover and access routes that will conceal your presence. Before shooting any animal in steep or bluffy terrain, give consideration as to whether you will be able to safely recover it. If there is any doubt, it is better not to take the shot.

The season will dictate where and when you can go hunting safely in the open tops, especially in winter with the possibility of snow and ice.

Wind and Localised Air Movements

Wind direction is one of the most important considerations when hunting, it is vital to hunt into the wind to avoid alerting the animals by picking up your scent. Game animals have an exceptional sense of smell, this means you will need to know some information about wind and air movements.

Katabatic winds are the air flow created by the sinking of cold air from higher altitudes in the absence of a strong prevailing wind. Katabatic winds flow down-valley first thing in the morning and in the evening as the air falls and temperature cools. As the sun rises the air temperature warms and air starts to rise, causing air flow back up the valley, known as anabatic winds.

This applies in major valleys as well as gullies with a general tendency for down-valley winds early in the day, up-valley later, and down-valley again in the evening. When hunting it is important to give consideration to both types of wind and when they may switch. It is helpful to use a wind indicator to monitor wind direction.

You can take advantage of this thermal effect while hunting. On still, fine mornings get out early to hunt quietly upriver or uphill at dawn. At daylight, climb quietly up game trails that lead from the feeding areas to the higher spurs and ridges where deer will bed down for the day. Get up high while the day is still warming up and before the katabatic wind eases off. Find a good vantage point, sit down and glass repeatedly. When you feel the first faint anabatic wind from below, begin hunting again, downhill and into the wind.

The thermal effect of katabatic and anabatic winds can be overridden by any stronger 'prevailing' or dominant wind.

Wind carries sound as well as scent, so be as quiet as possible. Talk in a low voice while facing away from the direction you're hunting. Sound can travel a long way especially at high altitudes in thinner air, game animals have exceptional hearing and if they hear you talking will become wary and move away.

Tips for checking wind direction

- Tie a short length of light cotton or wool thread to the muzzle end of your rifle and look from time to time to see how it moves in winds that may be too light for you to feel.
- Carry a disposable lighter in your pocket and use the flame to check wind direction if you are unsure which way the air is moving.
- Wet a finger and hold it up to sense the wind direction.

Stalking

Game animals depend primarily on their sense of smell, but also have excellent hearing and eyesight. Deer rely on air currents to carry scent and warn them of the approach of danger. Whether moving about and feeding or lying hidden in cover, they are alert for scents and sounds around them. This is why it is most important to hunt with the wind in your face or at least across your path.

Game animals that live high in the mountains, such as chamois and tahr, rely primarily on their eyesight over their hearing and sense of smell.

When stalking, avoid exposing yourself on the skyline as you will be clearly visible, silhouetted against the background. If possible, keep just below the ridge and be extra careful whenever you pop up for a look over the other side. A clump of tussock or rocky outcrop can be used to hide behind, stay in the shadows if you can or use a background of foliage. Move with slow and easy motions, rather than moving erratically. Pause, look and listen frequently.

Be as quiet as you can. Consider the sound of your footsteps, the cracking of twigs and the scraping of branches on your clothing, pack or rifle. Wear quiet clothing such as Polar fleece, and softer soled boots can reduce noise in easy bush terrain. Step quietly by deliberately placing your heel first and rolling onto the ball, looking down to check where to place your feet for the next steps. Stop regularly and listen, keep scanning for game and sign. A good rule is to never step on anything you can't step over. Never carry loose cartridges that rattle. Secure loose zips or items that may rattle on your pack to silence them.

Chambering a round from the magazine when you expect to see a game animal will make sufficient noise to spook the animal. Using a half open bolt in a state of semi-readiness will allow you to stalk with the firearm in a safe condition and when you do see an animal, you can chamber a round quietly.

It is difficult to maintain concentration for an extended time while hunting. One way to sustain your concentration is by moving short distances at a time and then stopping regularly to look and listen. When your concentration fades, stop and take a proper break, preferably in a spot where you can have a good look around. If you lay down for a rest, always get up again very slowly, because an animal might have wandered into your sight without sensing your presence.



FIG. 101. Glassing with a spotting scope and binos in hand - Image: Cam Henderson

Tips for stalking

- When stalking into the sun, wear a peaked hat that will shade your eyes so the animals will not be alerted by the flash of movement if you raised your hand to block the sun.
- Wear camouflage clothing that can reduce contrast, including face covering and gloves to limit the chances of an animal spotting you.
- If you hear something making noise on your pack or clothing, stop to secure and silence it.
- Consider carrying a collapsible soft plastic water bottle that won't slosh as you walk.
- Sometimes you will smell deer before you see them and before they see you. This means you are very close to them and may give you an advantage.
- You may hear a deer before you see them. Deer make noise when travelling through bush or when stags thrash their antlers.
- A fleeing deer in the open can sometimes be stopped with a shout or whistle, often giving you enough time to take the shot.

Glassing

Glassing is a hunting term for using your binoculars. Glassing is useful in open areas where you can see a long way to search for animals. It is important to get into a comfortable position where you can stabilise your binoculars, as often you may be glassing for some time. A good starting point is to glass areas that are sunny and north facing, and those that get the first sun in the morning and the last light in the evening. Also focus on bush edges, head basins and slips with new growth. Look for shapes and colour that might indicate an animal. It is worth spending lots of time glassing the same areas as animals can move into view at any time. A good method of glassing is to keep your binoculars stationary on a likely area and move your eyes within the field of view to search that area.

Using a good quality spotting scope can help you positively identify and assess the characteristics of an animal such as sex, age and trophy potential at long distances. This will help you make the decision to target an animal or to carry on glassing.



FIG. 102. Glassing requires patience - Image: Gwyn Thurlow

A Wounded Animal

When you shoot an animal, there is the possibility that you may only wound it. A wounded animal can be mortally wounded, or severely injured and require a further shot. If you do wound an animal, it is your moral responsibility to track it, and dispatch the animal as soon as you can.

When mortally wounded, an animal may travel some distance before they lie down and die. When an animal is only injured it may also remain mobile for some time before dying or otherwise continue to live.

It is important to recognise an animal's reactions when it is only wounded. For example, an animal that has been shot in the gut will usually hunch and then walk away. In this situation, the deer may only walk a short distance before sitting down because of the wound.

If you suspect an animal has been wounded, it is recommended that you do not chase the animal. This will cause it to flee on adrenalin and continue to flee as you chase. Give the animal time to succumb to its wounds. It will usually die from blood loss in a short time, and you have the best chance of locating the animal soon after.

If you wound an animal, it is important that you make a note of where the animal was standing when you took the shot. When bush hunting you are often close enough to hear where the animal goes if you cannot see it. In open country you can often watch the animal as it moves away and out of sight.

In open country, identify landmarks you can locate near where the animal was shot or last seen as a point of reference. Make your way to your reference point, if you have a companion they can guide you using hand signals or a hand-held radio once you reach the vicinity of the animal.

Search the area where the animal was shot for blood, hair or stomach contents. These may indicate where the shot hit. Dark coloured blood, especially alongside stomach contents, indicates a gut shot. Bright red blood may indicate a flesh wound. Frothy, light coloured blood indicates a lung shot.

If you can't immediately locate the animal, look around for a blood trail. Blood on leaves and on the leaf litter or mud of the forest floor can often be followed. There may also be hoof and skid marks where the animal has slipped, indicating the direction they're heading. Generally, the animal will head in a straight line, apart from dodging around thick clumps of bush or steep faces. Wounded animals will usually move downhill. If you lose animal sign, circle slowly ahead until you find it again. If you can't find it, mark the last sign and start looking closely around the area where you lost the trail. A dead deer can be concealed by a relatively small bush. You should continue to search until locating the animal is no longer realistic.

If it gets dark before you find the animal, and searching by torchlight is not an option, you need to mark the area carefully so that you can return the next morning. Mark a way point on your GPS or leave an obvious marker such as tracking tape. If there is no rain overnight, the blood spots and smears may still be there. If rain has washed away the trail you need to follow the line the animal was taking. If the animal has died, the buzzing of flies may give away the animal's location.

Be careful when approaching a wounded animal. Always approach from the uphill side and behind its line of sight. A wounded deer can throw its head back or lash out with its legs and possibly injure you. If you are

unsure the animal is dead, look for signs of breathing and to be sure touch an eye with the end of your gun barrel.

Often when you find a wounded animal it will simply turn its head to watch your approach. As soon as you are able, shoot it again to ensure it expires quickly. Finishing shots will often be at close range so be mindful of the background and potential for ricochet.



FIG. 104. Sidling up a creek at Aoraki Mt Cook - Image: Gwyn Thurlow



FIG. 103. Sika Country - Image: Mike Ng

Chapter 7: Hunting Techniques

Ngā Rautaki Whakangangahu

Key Learning Outcomes:

- Explain general deer behaviour by season, time of day and weather conditions.
- Describe the main types of deer sign and what a hunter can learn from them.
- Describe a deer's primary defenses.
- Demonstrate basic stalking techniques.
- Understand the importance of wind and its likely direction.
- Explain how to use movement, sound, and colour to your advantage.
- Demonstrate/describe how to track wounded animals.

Notes:

8 MEAT, SKINS & TROPHIES

Te Mīti, ngā Kiri me ngā Pihi

When you're starting out hunting, the focus is on finding and securing your first animal which can take a long time. In this chapter we cover harvesting your animal. What you do after you have shot your game animal depends on what you want it for: is it a trophy animal? Do you want to enter it in the NZDA competition? Is it suitable for display after taxidermy? Or do you simply want to make the best use of its meat and skin?

Mostly hunters secure meat animals because trophy class animals are rare. The subject of trophy hunting is not the focus of this chapter, however we will explain the basics of skinning and preparing your animal for the taxidermist and getting your antlers, horns and tusks prepared for NZDA competitions.

Before doing anything, take plenty of photographs. This is not only for the photo album or photographic competitions, but good photographs can also help the taxidermist.

Field Dressing

If you want good meat from the animal, the basics are - kill cleanly, cool the carcass quickly, keep the meat clean, secure it against flies and wasps, and butcher it properly. A well-placed shot kills the animal quickly and humanely with minimal loss of meat.

Method 1: “No Waste”

- First free up the anus, cutting deep around the opening with a good clearance. Then pull the rectum clear and ensure droppings don't foul the meat.
- Free the windpipe from the top by cutting vertically along the front of the throat, then pulling the windpipe free. Reach in at the base and cut around it with the knife.
- Roll the animal on its back and make an incision down the middle from the sternum all the way to between the hind legs. Cut through the skin and gut wall but be careful not to pierce the stomach or intestines.
- Take great care not to cut the bladder. If it is a stag, cut around and free up the penis and if it is during the rut, cut a large buffer around the dark patch which is urine and hormone staining. This area is more generally referred to as the pizzle.
- If you're on a slope, point the hindquarters downhill so gravity will help to make the organs fall easily out of the animal.
- Cut or pull away everything that attaches the guts to the body, working backwards and being careful with the intestines. Ease the gut organs out in a bundle to roll away. When removing the bladder take care not to spill the urine.
- Cut around the diaphragm with the knife. Be careful with your hands in case there are any splintered ribs. Reach right up into the chest cavity and pull out the lungs, windpipe and heart. Wipe out any blood. You should have already cut the windpipe at the throat.
- If the carcass is to be left to chill, you need to expose the meat to maximise cooling by spreading out its ribs to allow airflow into the belly cavity. Use sticks to prop the body cavity open.
- Any organs you want to keep, e.g., heart, lungs, kidneys, tongue should be cooled separately from the carcass.
- Remove the small eye fillet steaks from the top inside the rib cage and set these aside to cool.
- The process of cooling is known as the meat setting. The muscles become stiff and easier to process once set.



FIG. 105. Field dressing a red deer - Image: Gwyn Thurlow

Method 2: “Quick and Easy”

This field dressing method saves having to gut the animal but does not recover any organs or minor meat cuts. This is suitable for when you are hunting in remote wilderness and have a long walk out; places where you may not be able to take all the meat and will want to save weight.

- **Shoulder:** With the animal on its side and while lifting the front leg make a cut across the chest and under the front leg. Proceed to cut following the ribs towards the spine until the shoulder is removed. There is no fixed joint attaching the shoulder.
- **Back leg:** Now do the same with the back leg, noting that the back legs have a ball and socket joint. Cut through the joint and follow around the hip bone, doing this carefully with small knife strokes will allow you to pull the leg away from the animal. It is important you avoid puncturing the gut cavity and the bladder, as this will contaminate your meat.

- **Back steak:** Make an incision all the way from between the shoulder blades, down to the pelvis along the spine. Peel away the skin to expose the back steak muscle. Then using the spine as a guide rail, run your knife down the spine close to the ribs to minimise wastage. It takes some practice to remove a back steak completely. The back steak is one of the prime cuts that should be taken first if weight is an issue.
- As you remove major limbs and muscle groups, set them aside to cool while taking care to keep the meat clean.
- Roll the animal over and repeat on the other side.



FIG. 106. Removing the back steak - Image: Tom McCowan

Now that you have the legs separated, you can choose to carry them out with skin on and bone in to complete the following process at home or a later stage i.e., back at the hut. If you have time, you may decide to remove the skin and bones then and there.

- Cut down the leg, to just below the first joint then carefully remove the skin off that leg. Hanging the animal in a tree helps for this step, or you can ask a friend to hold it while you skin off.
- Once the skin is off cut through to the first joint, you now have a skinned leg. Place the leg on a clean surface, such as a pack liner.

Tips for Field Dressing

- Carry a good length of string or 'paracord' to hang your meat from a tree while processing to make it easier.
- Meat generally tastes better after being chilled and set. However, some cuts of meat such as the eye fillets and organs can be eaten soon after harvest.
- Twigs, leaves, hair, and grasses stick to carcasses and contaminate the meat. The twigs and leaves become set in the colourless, sticky surface and are difficult to clean off so avoiding contact is important to minimise wastage.
- Flies are also a problem as they lay eggs which become maggots. It is possible to remove the eggs, but once maggots set in, you must throw away the meat. Most hunters carry meat bags which act as a barrier to flies. Some hunters swear that flies can be discouraged with black pepper. The carcass can be hung in meat safes available from many hunting stores. Using plastic bags is not ideal but is better than nothing to prevent fly strike.

Skinning

The easiest way to skin an animal once gutted is when it is hanging above the ground, for example from a tree. Hanging is generally done by tying one or both back legs or by tying through the pelvis. If this is not possible, you will need to skin the animal on the ground, but this is more difficult.

Skinning an animal is a skill and takes time to master, the following are the basic steps but you will learn the practical skills by watching and learning from others.

- The first cut starts at the sternum (breastbone): slip your knife beneath the skin and cut along the centreline to the throat.
- Taking the forelegs, cut the skin in a circle around both hocks. Make a cut down the inside legs, meeting with the cut along the sternum.
- Punch away the skin or use a knife to feather it away removing it from both legs, over the shoulders and towards the neck.
- Make a circular cut around both back leg hocks. Make a cut down the middle of both inner thighs to meet the cut along the belly in the pelvic area.
- Use the knife edge if necessary to help part the skin from the leg at the hock end and then punch the skin from the leg all the way down to the backbone.
- Skin the ribcage back to and over the spine. It is usually easier to work from the foreleg back and use the sweep of the skinning knife to clear the ribs and stomach area.
- You should now be able to free the skin from the carcass. The skin should either be disposed of or cooled for curing as soon as possible. If you intend to keep the skin, you can follow the steps further in this chapter.

Note: If you are planning on preserving the whole skin, make sure the cuts around and down the legs are symmetrical.



FIG. 107. Cutting down the inside legs - Image: Tom McCowan

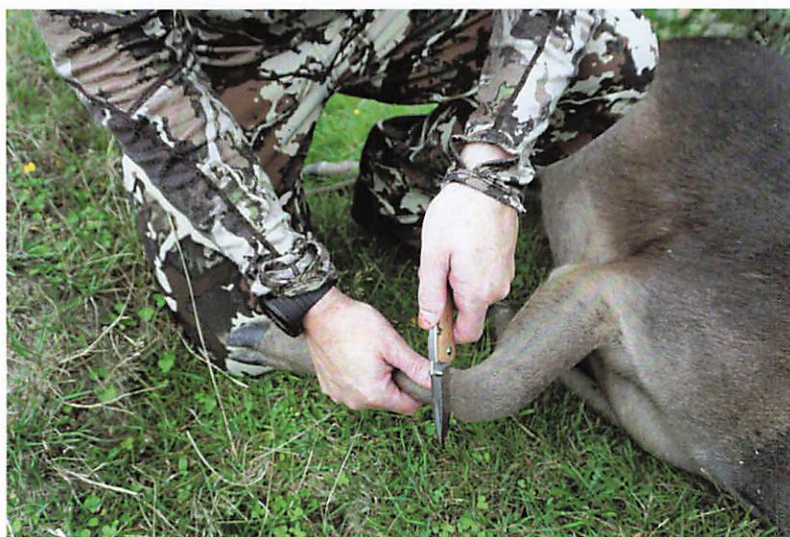


FIG. 108. Cutting around the hocks - Image: Tom McCowan

Breaking Down a Carcass

- Remove the fillet steaks from inside the gut cavity first.
- Next, remove the major limbs in the most logical way. If on the ground, usually this will be the hind legs. If hanging, this must be the front legs.
- When removing a hind leg, pull the skinned hind leg back and cut between the legs through to the pelvic bone. Use the point of the blade to cut around the ball in the pelvic bone socket as you lever, and you will eventually be able to lever the leg free. Finish cutting the leg clear.
- When removing a front leg, the front shoulder is freed by cutting downwards through the muscle linking the leg to the ribcage, pulling the leg away from the body. There is no ball socket to be popped so the leg will come away easily.
- Take each leg clear of your work area. Hang them in a tree or lay each leg on a clean surface to cool.
- As a general rule, only remove a back steak when you have removed the corresponding front shoulder.
- If you are working on the ground, you have to break down each side separately and you will skin only the side you are working on as it will not be possible to skin the whole animal prior to dressing it. You can use the animal's skin to place your meat on, hair side down, as a barrier to the ground below.

All meat should be given time to cool before being put in a meat bag. The top of the bag should be left open if possible, so that heat can escape. Meat should be cold to the touch before being transported as bacteria multiply in environments with moisture and warmth. By keeping the meat cool during transport, you preserve the meat and stop it from spoiling.

Meat must not be carried in a sealed plastic bag if it is still warm. It cannot be overstressed how important it is to cool meat well before being carried out. You should periodically check that your meat remains cool.

Boning Out

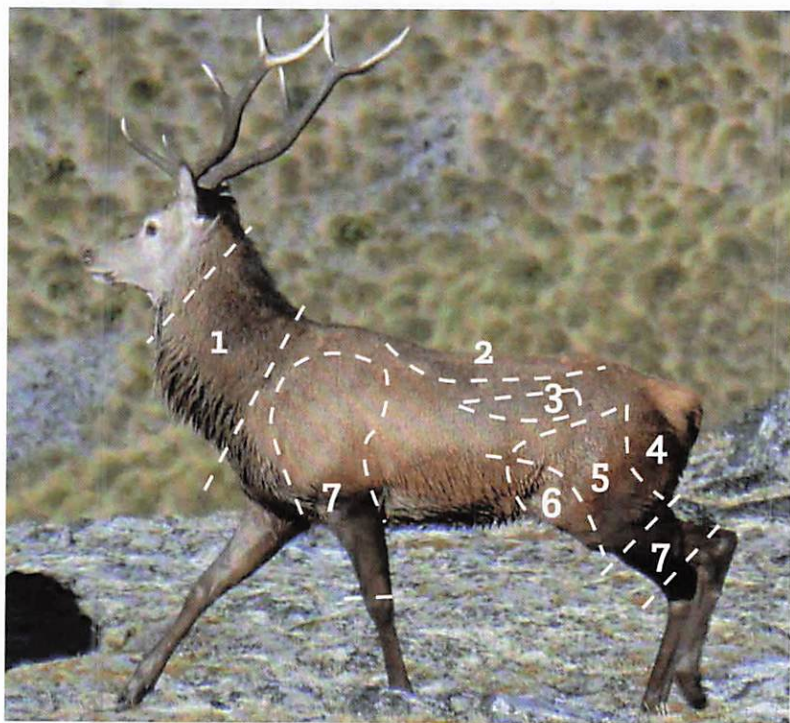
Boning out refers to removing the bones from the four quarters or legs, leaving major muscle groups. Boning out may be done in the field or at home. Your choice will depend how far you need to travel as removing the bones will reduce weight to carry.

- Removing the meat from the front leg and shoulder blade is straightforward. Most hunters will use this cut of meat for stews and mince, it may just be cut from the bone which can easily be followed with your knife strokes.
- Bone the hind leg by splitting it into the muscle groups, these will include the rump, sirloin, thick flank, silverside and topside. You can see easily see where to cut by following the muscle groups as indicated by the white connecting tissue.
- Nick with your knife along one of these lines, insert your thumb and separate the muscles. Only use your knife to separate the muscles from the bone, not from each other.
- If the leg is hanging, the weight of the meat itself plus the tension of you pulling will make it obvious where to make cuts using your knife.
- You can cut the meat from the shanks, which is the meat below the joints and above the hoof. This meat is ideal for sausages, or you can keep the shank intact.



FIG. 109. Meat cooling before transport - Image: Peter Henderson

Meat Cuts



1. Neck: for roasts and stews
2. Backsteak: crosscut and fry
3. Eye fillet: crosscut and fry
4. Rump: roast, or crosscut and fry
5. Silverside: corned
6. Topside: roast or schnitzel
7. Blade and shank: for stews, mince or sausages

FIG. 110. Game animal meat cuts illustrated on a red stag - Image: Peter Henderson

Storing Meat

Game meat benefits from being aged. If you refrigerate the meat for 3 to 4 days it will tenderise and make for better eating, particularly the cuts that will be fried, roasted, or grilled.

For proper refrigeration, meat should be placed on wire racks to maximise cold air flow in. The meat should then become dry on the outside, making it easy to trim off the sinew and connective tissue before cooking or freezing.

The tougher cuts, such as the forequarters and shanks can be cubed for stew or casserole or given to a butcher for processing. Not all butchers are able to process game animals because they need a special license. MPI has a registry of butchers that can process your game meat.

The muscles from the back legs can be used for steaks, roasts, or for corning. The back and fillet steaks are considered the prime cuts as they are the most tender.

When bagging meat for the freezer, separate the meat into meal sized portions. Smaller bags will freeze more efficiently. It is not recommended that you freeze a large bag of meat because the centre may spoil while it takes too long to freeze. All packages should be clearly labelled and dated.

Preserving the Skin

The skin of a game animal can be an attractive trophy, and those from fallow and sika are particularly decorative. If you wish to keep the skin, you should start the preservation process in the field by cooling the skin immediately by spreading it out in the shade so air can circulate above and below it to cool it down. This will prevent the skin from spoiling and causing 'hair-slip'. Ensure all remaining pieces of meat, fat and other tissue are trimmed off carefully with the knife.

If you cannot freeze the skin immediately, you need to salt the inside of the skin to remove moisture and prevent spoiling. Cover the inside

surface of the skin with salt and rub it in with your hands, working it out to all edges. You may need up to 4kg of salt for a medium sized animal.

Once the skin has been salted, fold it skin to skin in a bundle for transporting. An open weave bag such as a sugar sack is preferable over a plastic bag for storage. Keep the salted skin cool until you get home.

If you are in the bush for a number of days, you may need to scrape off the old salt with any moisture and apply more salt periodically.

If you want to keep the skin, a professional tanner will do the best job. Alternatively, there are some commercial tanning kits and formula that you can use yourself.

Trophy Preparation

A trophy may include antlers, horns, tusks, or skins kept as a memento from a memorable hunt. There are general standards for what is considered an official trophy for example a 12-point red stag, however the trophy is ultimately in the eye of the hunter. If you shoot what you consider to be a trophy, you need to decide whether you want only the skull and antlers/horns, or you want to prepare the animal for taxidermy.

For measurement scoring, the minimum you will need from the animal is the complete skull and antlers. For taxidermy, you will need the head skin, often known as the cape.

Preparing skull and antlers for measurement

If you are only taking the skull and antlers for measurement scoring, the head can be removed by cutting through the neck where the top vertebra meets the skull. Pull the head back, cutting just under the throat at the back of the jaw to where the spine joins the skull. Cut around all connective tissue and twist the skull to remove the head.

For a taxidermy head mount

Firstly, make sure you take lots of good photos from different angles and distances to capture the look of the animal. For a head mount, you need



FIG. 111. Head skinning a fallow buck - Image: Tom McCowan

the cape of skin from behind the shoulders forward, even as far back as the front of the pelvis. Extra skin is needed to tuck in at the base of the neck at the time of final mounting.

Steps for skinning a taxidermy head mount (also called 'capping'):

- Begin by making a cut from the head to well behind the front shoulders along the centre of the back.
- Make a second cut all the way around the body from the point where your first cut along the centre of the back stops.
- Take each front leg and make a circular cut below the knee, carefully cut between the skin and the shank from both directions to release the skin, leaving behind a sleeve. Alternatively, you can cut up at the back of leg to the armpit and join these to the cut around the body. Note that these cuts eventually require stitching by the taxidermist so ensure the cut is hidden at the back of the front leg. Taxidermists prefer you use the sleeving method as if you put the cuts in the wrong place, they will be visible on the head mount.

- From here, skin the upper parts of both legs and up around the shoulders and neck to the head.
- When you reach the base of the skull, remove the head as described earlier.

If you can deliver the head and cape to a taxidermist within a day or two, they will be able to head skin the skull for you. Do everything you can to keep the head and cape cool to avoid spoiling as this will cause hair slippage.

Head Skinning

Leave the head skin on the skull if you can get it to the taxidermist the day after. If you cannot get the head and cape to the taxidermist in time, you will need to head skin the skull yourself. The tools you will need are your main skinning knife and a knife with a short, narrow blade such as a scalpel blade. This narrow knife is for fine work around the pedicles, ears, eyes, nostrils, and lips. You will also need a strong flathead screwdriver with the corners carefully ground off and rounded or a hunting steel with its point ground smooth.

The following text is a basic description of this process. It is strongly recommended that you also learn head skinning through practise before you get a trophy head. The section on head skinning in the book *Red Deer in NZ* by Roger Lentle and Frank Saxton (page 149) is worth reading, and there are videos on YouTube that will help you to know what you're doing. You can practise on any game animal, even on a hind or nanny goat.

Steps to follow for head skinning:

- Make sure your cut up the back to the base of the head is within 50mm of the base of the antlers.
- From this point, cut towards the base of each antler to leave a Y shape.
- Using your screwdriver carefully prise the skin away from the pedicles on top of the skull and from the skull between the pedicles. Be careful not to damage the hair that protrudes over the coronet.



FIG. 112. The removed head skin, 'caped', as usually presented to a taxidermist, with skull still to be removed by a professional - Image: Tom McCowan

- Work up the side of the head, turning the lower part of the ears inside out. Don't try to remove the cartilage from the ear at this stage.
- With a small knife and your thumbs, separate as much of the cartilage from the back of the ears as you can before cutting the cartilage clear at the base of the ears. The ears must be separated close to the skull, leaving the base of the ear intact. If the cartilage is cut too far up the ear, a gaping hole will be noticeable inside the ear of the finished mount.

The eyes, lips and preorbital gland all require special attention, skinning around these is best learnt through demonstrations and practice.

- Carefully remove the skin from around the eyes. If the point is filed off your small knife you are less likely to puncture the skin.
- Push your finger in so you can feel inside the eyelids. Having your finger under the section being fleshed out means you can feel the blade working without cutting the skin or yourself.
- Feel and look before cutting through the inner eye skin at the back corner of the eye, and again at the front corner of the eye. Keep at least 12mm of this skin from the inside of the eye socket, all around the eyelids.

- The preorbital gland in front of the eye is then dug out with the tip of the knife. Take your time and be extra careful here because damage to this hairless skin will be difficult to repair. Keep the knife hard against the bone. There is a fine line of gristle running down into the inside of the gland. Once this has been freed, the rest of the skin inside the gland will peel out easily.
- On reaching the mouth and nose, make sure the skin of the inner lip is retained. It should be retained from the inside of the mouth as far as the gums at the front and at least 50mm inside the nostrils. The nose and lips should be split lengthways on the flesh side to aid absorption when the skin is salted. Take care not to cut right through the skin.
- At this point, the head skin will be free from the skull.

It is a good idea to leave removing cartilage from the ears to your taxidermist if you can get the head to them in time. However, if you would like to practice skinning the ears yourself, then the final step starts by turning the ears inside out.

Using a sharp small knife, cut away any remaining flesh from the bulb of the cartilage. Then using the rounded handle end of a spoon prise the skin off the back of the ear between the cartilage and the skin all the way to the tip of the ear and to the back and front edges of the ear. Take special care not to tear the skin. At the edges it is sufficient to stay 3mm from the edge. This will help avoid tearing the skin at the edge. Turn the ear inside out leaving the exposed cartilage and salt the cartilage and the exposed skin from the outside of the ear. Also put a small amount of salt in the inside pouch of the ear and shake it around to disperse it.

Care of the Head Skin

Carefully examine the inside of the skin, check for any bits of flesh and gently remove them. Lay the skin hair side down and cover it with salt. For a medium sized red deer skin, you need at least 2kg of salt but be sure to use plenty. Sprinkle half on the skin and rub it in well. Work the salt into the corners of the lips and eyes and right out to all edges of the skin.

Salt draws out moisture from the skin and within 4 hours the skin will be covered with globules of brine. The next day, shake most of the brine off and replace with the remaining half of salt, again rubbing it into all corners.

Fold the skin, flesh side to flesh side. Roll it up loosely, keep it cool and let it drain. If you need to carry it in your pack, you will have to put it in a plastic bag to avoid leakage, but don't keep it there for long. Take the skin out and drain the brine from both the skin and plastic bag. Some hunters use a clean sugar sack formed into a pikau-style pack to carry skins and meat, which are first tucked into old cotton pillowcases so that it can drain.

The principles described further above for care of a skin, also apply to capes and head skins.

Cleaning the Skull

The full skull is required if the head is to be measured or entered in an NZDA competition. Flesh can be removed by boiling the head in a large pot filled with water up to the depth of the pedicles, and then scraping with a knife. This is best done on an outdoor stove or gas barbecue, as opposed to an open fire, so you do not scorch the antlers.

Another method is to bury the skull up to the pedicles for a few months, leaving the soil bacteria to break down tissues and flesh. After either of these methods, give the skull a scrub with soap and warm water and then dry it.

Taxidermists have head moulds so they don't require the whole skull. If measuring is not required you can save weight by using a saw to remove the top of the skull. You need a sufficient amount of skull to prevent the antlers distorting inward or outward. Cut in a straight line at the same level as the base of the eyes.

Scoring Trophy Heads

There are several trophy scoring systems used around the world. Which system you use depends on where you come from, and which species is being measured. Some favour mass (weight) of the head, others the number of tines. The three most used systems are Douglas Score, SCI, and CIC.

Douglas Score

This is the primary scoring system used for trophies obtained by free range hunting in NZ. It is also used in Australia and Papua New Guinea. The Douglas Scoring system is unique in its emphasis on symmetry. All measurements are in imperial units (inches and quarter inches), which are added up to give a total score in inches for example, 350 and 1/8th.

The Douglas Score system uses a formula whereby the length of antlers, horns or tusks are taken together with the measurements of the tines and beams.

Additional measurements on antlers for spread and span are also taken, and these contribute to the final score. On fallow deer, palm length and



FIG. 113. Scoring a trophy tahr. Measurements are taken in inches -
Image: Cam Henderson

width (both with and without points) are also taken, and the shortest measurements are doubled. A span factor is achieved by following a set of guidelines for spread of all antler trophies.

Horns are measured over the outside curve and around the base. In wild sheep and goats, the spread measurement is also taken. Pig tusks are measured either in the jaw or extracted. No spread measurement is applied to pig tusks, chamois, or tahr.

Having a consistent measuring system like the Douglas Score ensures the recording by symmetrical size can be referenced long after a trophy has been lost.

NZDA oversees the training of measurers, the measurement of trophies submitted by branches and maintains a master list of trophies and scores. There is an annual 'Antler, Horn and Tusk' (AHT) trophy competition for members to enter through their branch. Winners are judged and announced at National Conference each year.

Contact your branch for more information on Douglas Scoring, if you are interested in learning more.

Further reading: 'Recording big game trophies by symmetrical size' by Norman Douglas, 1959.

SCI

This is the system used by North and South Americans. It is also the score used by the safari hunting businesses in New Zealand.

Safari Club International (SCI) is the equivalent of the NZDA in that this organization maintains a master list of trophies which can be found on the SCI Online Record Book and also in a hard copy trophy record book.

CIC

The organisation known as CIC is European. The CIC trophy scoring system incorporates the skull and antler weight into the final score.

There are other scoring systems, primarily in North America. They include Boon & Crockett, Pope & Young (for bow hunters), and Buckmasters.

Photography

There are many reasons to carry a camera while hunting. Photographs will provide lasting memories and help you share hunting trips, scenery, game animals and trophies with others. If you hope to write magazine articles, or even a book on hunting, your photos will provide essential imagery. Photographs can also be entered into NZDA competitions at both national and branch level.

The camera on your smart phone may be all you need if you're not planning to get into the technical aspects of photography. For some hunters, photography and videography is an important part of their hunting trip so they will carry specific equipment.

Digital Cameras

Digital cameras store photos on a removable SD card or an internal hard drive. After use, the images can be downloaded to a computer for editing. Most cameras can be used in either still photo or video mode with good results. Many digital cameras are light and compact, they can be fully automatic or manual and most have a built-in zoom lens with good focal range.



FIG. 114. Capturing your trip in photos can be very rewarding - Image: Cam Henderson

Be wary that rechargeable batteries can run out at an awkward moment so ensure you carry a powerbank to recharge them.

Phone Cameras

Most cellphones come with a built-in camera for both still and video shots and many now offer different photography modes and zoom

Tips for trophy photography

When taking photos of an animal you have shot, there are some guidelines to follow for a well-constructed and respectful photo. These are generally:

1. Put the animal in front of you so the focus is on the animal and not you.
2. Wipe away any blood and put the tongue back in its mouth. Fold the legs so that they are tucked under the body naturally.
3. Do not hold up the animal's head by clutching its head or ears.
4. Make sure your rifle is unloaded, bolt open and facing away from you or others in the photo.

Other general photography guidelines that can be applied to hunting include:

- A landscape or scenic shot can be brought to life by putting a person in the foreground as this gives the scene both scale and interest.
- At other times you may be able to use an object in the foreground, such as a frame formed by an overhanging tree to improve composition and give the picture depth.
- When taking photographs of people try to get the sun behind the camera. Mountains often look better with the light from the side or even shooting into the sun, but in this case you need to get your exposure right for the shadows.
- A polarising filter will help with contrast.
- Keep your camera stable to avoid blur when taking a photo and if possible use a tripod to mount your camera.

settings. Most phone cameras take high resolution photographs that are suitable for publications.

If you are using a phone camera, be sure to disable the sound function so that it won't beep and give you away to animals at a critical moment. Also use a quality protective case as most cellphones are not waterproof and are easily damaged. This is particularly important if your phone doubles as your primary navigation device.

Again, be aware your cellphone has a limited battery life and therefore you will need to carry a powerbank for recharging.



FIG. 115. Success! - Image: Upper Clutha HUNTS

Chapter 8: Meat, Skins & Trophies

Te Mīti, ngā Kiri me ngā Pihi

Key Learning Outcomes:

- Demonstrate/describe how to gut and skin an animal
- Describe how to remove the cape and head of an animal
- Explain the basic procedure for head skinning
- Explain how to preserve skins and meat
- Demonstrate/describe how to butcher an animal to remove the main cuts of meat
- Describe the basic principles of the Douglas Score measuring system
- Describe the main measurements required by the Douglas Score measuring system
- Demonstrate/describe how to take good quality photos of trophy or game animals

Notes:

9 OUTDOOR EMERGENCIES & SURVIVAL

Ngā Tikanga Ohotata,
Te Oranga Tonutanga

Every year in New Zealand at least one hunter will find themselves in a position where they need to deal with an emergency or survival situation. Often these end up as only an unplanned overnight stay in a survival bag, warmed by an emergency fire. Sometimes these situations can go very wrong resulting in multiple days of uncertain survival or tragically the hunter not surviving.

Imagine you are lost in the bush; cold, wet, and under prepared, or hunting alone in the back country. If you fall down a bank and break your leg, how would you react, how would you cope and how would you survive?



FIG. 116. What would you do in an emergency situation? - Image: Mike Ng

This chapter will provide basic safety information that every hunter needs to know, including how to deal with emergencies and how to prepare for the best chance of survival if things go wrong.

Preparing for an Emergency or Survival Situation

Diligent planning is the key to dealing with any emergency. You should understand that an emergency or survival situation can arise at any time. Managing risk is a daily consideration in workplaces and the same considerations should apply for anyone heading into the hills hunting. Identification and assessment of risks ensures adequate preparation and allows for a response plan to be thought out. Managing risk does not stop once you begin your hunting trip, it is an ongoing process of doing what is needed to keep yourself and others safe.

If you become lost or injured, your reaction and response will determine the outcome. Your natural reaction may be to panic, but panic has the potential to result in poor decision making and a worsened situation.

Your first reaction should be to remember the acronym **STARS**:

STOP: This can be the hardest thing to do but it is most important that you stop, sit down, and stay calm.

THINK: Think about your situation and the options you may have to improve the situation.

ASSESS: Assess your situation, selecting the option that will give you the best chance of survival until help arrives.

RESPOND: Put into place your plan of action.

STAY PUT: Shelter, stay warm and dry.

Survival means to keep yourself alive until help arrives or your situation improves considerably so that you no longer require help. Remembering STARS will help you have the best chance of surviving.



FIG. 117. Emergency camp setup - Image: Peter Henderson

The four essential needs for survival are shelter, warmth, water, and the will to survive. You may only survive two days without water, a matter of hours without shelter or warmth and the will to survive will be what motivates you to keep yourself alive.

Regardless of whether you are planning a short day hunt by yourself or a multi day trip with friends, you should always leave your intentions with a responsible person and carry emergency clothing, food and equipment.

Write down your intentions, send them as a message, or use the outdoors intention form and remember to include:

- Names and contact details of party members
- Emergency contact details including medical conditions of party members
- Vehicle registration details and where they will be parked
- Dates of the trip, including where you will enter and exit your hunting area
- Intended daily movements and location of camps
- Emergency equipment you will be carrying (e.g. PLB)
- Possible alternative routes

The outdoor intentions form can be found in Appendices. Ensure you contact the person you have left your intentions with as soon as possible when you get out and let them know that you and your party have returned safely.

For a day hunt you should plan to take:

- Emergency clothing that will provide warmth and protection
- Emergency food and water in addition to daily rations
- Emergency survival kit (contents listed in Appendices)
- First Aid Kit (contents listed in Appendices)
- Personal Locator Beacon (PLB)
- Navigation equipment including GPS, map, compass and cellphone

Note that your list may vary depending on the environment you are hunting, the weather forecast and the time of year. You might carry this equipment without ever using it, but it is very important to have this on hand for when you need it.

What to do if You are Lost

If you are lost, first remember that if you remain composed and think carefully you will be more likely to figure out where you are and find your way back on course. There's an important difference between being briefly disorientated or confused and being actually lost where you are unable to work out where you are and which direction to go.

Start by reconstructing your immediate past movements without moving far from your current location. Look at the map and see if you can figure out what might have happened to make you disorientated. Where and when could you have made a wrong turn; and if you did so, where would you end up?

You may need to climb uphill until you can see natural features such as a high point, river bend or lake and complete a resection by using your map



FIG. 118. Am I lost? - Image: Mike Ng

and compass which will show where you are on the map. A GPS can give your exact location indicated on its electronic map, or you can find your location using coordinates from your GPS alongside your physical map. Don't be too eager to move on from the spot where you first realised that you were lost as moving from an uncertain position may only compound your confusion.

If you feel you are lost, or have spent a lot of time trying to figure out where you are and it is getting dark, you should begin making preparations to stay out overnight. Do not attempt to travel in the dark unless you have figured out exactly where you are and find that you are on a route that is easily travelled by torchlight. Staying out overnight is a much safer option than risking an accident in the dark.

You need to consider both your mental and physical state so try to keep calm and conserve your energy. Preparing a camp for a night out in the bush will help to keep your mind and body active.

To prepare for an emergency night out:

- Find a dry, sheltered spot away from the valley floor as this is where cold air sits at night. This spot should be as close to freshwater as possible.
- Prepare your emergency shelter by using an emergency fly or natural material that will protect you from wind, rain, or dew. Make a bed of dry leaves, fronds, or tussock to insulate you from damp, cold ground.
- Start an emergency fire for warmth. Collect sufficient wood for the night well before dark and ensure you have contained the fire.
- Get into your bivvy bag or wrap your survival bag or blanket around yourself. Keep all your clothes on. You can get extra warmth by putting your feet inside your emptied pack and using your raincoat as a groundsheet or extra blanket.



FIG. 119 Prepared for an emergency night out - Image: Mike Ng

Fire Lighting Tips

In a survival situation you may need to light an emergency fire in wet and windy conditions, so it is a skill worth practicing beforehand.

- Collect a large amount of wood. Make sure that you have enough material, including small twigs for kindling and larger branches for when the fire begins to grow.
- Look for dead fallen branches hung up in trees as these will be wind dried. Branches lying on the ground are likely to be damp and difficult to burn.
- Under an overhanging bank or fallen log you may find a deposit of dry leaves and twigs.
- Build your fireplace in front of where you have your shelter, with the wind at your back so smoke will blow away from you.
- Contain your fire in a fire pit or against an old rotten log to protect it from the wind. Scrape away dry material from around the fire that may catch alight. Be aware that stones placed around a fire may explode when heated.
- Prepare your fire starting with materials on a flat bed of short sticks laid on the ground. Place your fire starter on this and add your tinder. Break up your kindling and place it loosely on top.
- If raining, it may also be necessary to build up a cover of branches to keep your fire lighting materials dry. A roof of bark or sticks arranged in an A-frame can also help to keep materials dry.
- Wet wood can be dried and made easier to burn by splitting it. Split sticks by bending or breaking them along their length. This exposes dry inner wood and increases the surface area, making them more combustible.
- As the fire catches, have more split wood ready to add as the flames grow. Gradually build up the fire, being careful not to add too much wood at once. Flames and hot air must be able to rise through gaps between the sticks or the fire will become smothered and die out. Fanning or blowing on the embers may help intensify the flames.
- Monitor your fire, ensuring you always have enough wood and that it stays alight.
- Don't leave the fire unattended for long periods and remember to extinguish it properly before you leave using plenty of water or sand.

What the Lost Person Should Do

If someone is reported overdue, time is usually given for the lost party to return on their own. If the lost party does not return, a search and rescue response will be initiated. Weather permitting, the first SAR action may be to fly over the area with helicopter or fixed-wing aircraft to do an initial search of the area. This will include searching huts and campsites, checking logbooks and talking to other people in the area, so they can let the lost party know that they are being searched for if seen.

When ground searchers are deployed by Search and Rescue they will ensure that a lost party is contained within an area to optimise the search. If you know that air and ground searchers are looking for you, stay exactly where you are. Make a comfortable camp at a place that can be seen from the air on a main route such as a river or ridge line, near to water and stay sheltered. On many occasions a lost party has walked away and out of a search area completely, making the search last a lot longer than if the lost party had stayed in one location.

Try and stay in a location that is visible to air searches. Signal your position with markers such as your orange pack liner or survival blanket that can be seen from the air. Movement can often be seen from a long distance, so consider waving a coloured bag tied to a stick or use something shiny to act as a signal mirror and reflect the sun toward an aircraft or searchers.

Light a fire and have a supply of dry fern fronds or other material to quickly throw on and create plenty of smoke if you hear an aircraft approaching. Smoke will rise through dense forest canopy and can be smelt by aircraft crew when flying over. Even on a cloudy day, smoke can be seen as it is blue in colour and contrasts against grey cloud.

Wear your high-vis clothing and if you hear searchers in your area, use a whistle to alert them. A whistle can be heard more clearly and from a further distance than shouting. If you connect with searchers by whistling, do not move toward them but continue to stay where you are.

Take extra ammunition to use in the event of an emergency. A rifle shot can be heard from a long distance and three shots fired one minute apart will be recognized as the emergency signal. If you hear a shot, then make

a habit of counting down from one minute to ascertain whether this is an emergency signal. Make sure that you know if ground searchers have been deployed before using your ammunition.

If you decide to move for any reason, leave sign indicating your direction of travel where it can easily be found by searchers.

Planning for the Overdue Hunter

Before leaving camp, you should always have an agreed upon plan with your hunting group to cover a situation where someone has not returned. This plan should include an agreed upon time at which an emergency response will be initiated if someone fails to return. This time may change and be determined by the situation and circumstances.

Before each hunter leaves camp, they should write down where they are hunting and their expected return time. A log sheet or notebook should be kept in a known place for this purpose.

Two-way radios are a great way to communicate should you find yourself caught out at dusk. The more powerful 5-watt radio can have a range of over 10 kilometres depending on the topography. Many GPSs now also have a two-way radio function which will allow you to communicate with and send your location to another GPS device. It is a good idea to set up scheduled check-ins throughout the day to report you are OK or conversely that you need assistance.

If a hunting companion fails to return to camp, your planning and response could determine the outcome. Have a look at their intentions to ascertain which direction they may be. If possible, you could travel a short distance from camp and try and make contact through voice or by firing a shot to get a response shot back from them. If this is successful, you will have a good indication of their direction and distance from camp. They will also have an indication of direction and distance back to camp. Continue to communicate via voice or rifle shot as you see necessary.

If you do not receive any response from voice or rifle shot, you should contact emergency services as soon as possible and give them details of



FIG. 120. Your planning and response will determine the outcome - Image: Mike Ng

the situation. They may choose not to initiate an immediate response or may give the overdue person time to return to camp in the morning. However, by contacting them immediately it will give them time to begin planning for a search and rescue if needed. If you are seriously concerned about the lost party's wellbeing and have no other means of communication, it may be necessary to activate your PLB and alert emergency services.

A last resort could be to fire periodic shots in the hope that they will be heard. If your shots are heard it can comfort the overdue hunter and let them know you are aware of their situation. Remain in contact with emergency services to advise them if the situation changes or remains the same. A mountain radio can be used to communicate with search and rescue directly. If a search and rescue is initiated, wait for them to arrive and they will take responsibility for the search. Be willing to assist emergency services in any way you can.

First Aid

This section is not intended to be a substitute for professional first aid training. Hunters are advised to receive training by qualified instructors on a first aid course. This section gives some context to common first aid scenarios that can occur in the outdoors when hunting.

First aid courses are generally designed for everyday situations at home and in the workplace. However, there are medical and first aid scenarios that are more specific to outdoors activity in the backcountry. Examples include hypothermia, dehydration, exhaustion, and insect stings.

Less life threatening conditions are more commonly encountered and include blisters, cuts, and sprains. While these may not always be severe they can occur frequently, so you should be well equipped and prepared to deal with them.

First aid is the immediate assistance you give to anyone, including yourself, who is ill or injured. First aid is intended to help the person until professional medical help can arrive, but when you are in the backcountry it may involve an extended period of care.

The basic objectives of first aid in the outdoors are to:

- preserve life.
- prevent further injury, and
- promote recovery.

For serious incidents, it is important to assess the situation for dangers before going to their aid to prevent yourself and others from being at risk. A systematic approach to assessing the situation will ensure that basic life support is given where needed. This will be learnt by attending a first aid course, and the first aid manual or handbook will become an essential reference to cover the details. Attending a first aid refresher is also essential to keep your knowledge fresh.

A personal first aid kit should be carried by all party members and a recommended list can be found in Appendices. These kits should be regularly checked and restocked before heading into the backcountry.

Medical Conditions

When planning a trip, everyone should be aware of pre-existing medical conditions that may affect fitness or health such as diabetes, heart problems, allergies, or epilepsy. You should also know if anyone is taking medication, what dosage is required and where it is carried in case they are unable to administer it themselves, for example an EpiPen or asthma inhaler.

Hypothermia ('exposure')

Hypothermia is caused by prolonged exposure to cold, wet, and windy conditions. Hypothermia happens when your core temperature drops to a level where normal brain and muscle functions are impaired. Heat is drawn from the extremities (head and limbs) to preserve the temperature of your core and vital organs. If body temperature cannot be maintained, the organs may shut down and this can result in death.

Hypothermia can also occur in temperatures that are not bitterly cold due to a person being wet, sweaty or being in cold water for extended periods (e.g., river crossings). You are more vulnerable if you are tired, hungry, or dehydrated. Hypothermia can come on unexpectedly and you may not be aware of it until you are at an advanced stage or you may not be aware at all.

The risk is higher if you are on your own, with no one else to notice the warning signs. It is much easier to spot hypothermia in a companion than in yourself as long as you are not affected as well. Watch for signs such as:

- uncontrollable spells of shivering
- slurred or slowed speech
- incoherent and vague statements

- confusion and memory lapse
- clumsiness and drowsiness
- blue extremities
- exhaustion or inability to get up after a rest or fall

Advanced hypothermia is when your energy reserves are depleted and you're losing heat faster than your body can produce it. As your core temperature drops, your brain, liver and heart lose their ability to function. Signs of advanced hypothermia can be when normal shivering stops, or a person starts to feel warm again and wants to discard clothing.

The risk of getting hypothermia can be reduced by:

- Maintaining good fitness
- Checking the forecast
- Keeping well hydrated
- Regularly eating high energy foods
- Dressing for the conditions
- Always carrying your survival gear
- Ensuring the trip is within everyone's capabilities
- Managing clothing layers to avoid getting too hot as well as too cold, sweat can wick away body heat and chill you.
- Wearing a beanie or hat and gloves to reduce heat loss from your extremities

Wind chill can significantly reduce the felt temperature and will have more of a cooling effect on you. Wind will accelerate heat loss, particularly when you are wet, so reduce exposure to wind especially when it is cold. Wind exposure can be reduced by wearing a windproof garment and sheltering from the wind where possible.

Treating Hypothermia

Treatment of hypothermia involves carefully getting warmth back into the vital areas. If the patient is chilled right down, then warming them too quickly or in the wrong way could compromise recovery.



FIG. 121. Be mindful of your party's physical state when in bad weather conditions
- Image: Cam Henderson

The basic principle is that if the onset of hypothermia has been long and gradual then rewarming should also be done gradually. Sudden heating like sitting in front of a fire or having a hot drink can be fatal in advanced hypothermia.

The recommended treatment for hypothermia is as follows:

- Be gentle when helping a person with hypothermia and monitor their vital signs throughout the treatment process.
- Find shelter out of the wind, cold conditions, and rain. This could involve setting up a tent or making a shelter.
- Alert emergency services with your communication device or activate your personal locator beacon (PLB).
- Assist with removing all wet clothing and changing into dry clothes. Put a beanie on the head to retain heat. Lay the person on a sleeping mat to insulate them from the ground.
- If you have a sleeping bag, get a party member to pre-warm it and gently help the patient into it. If there are more sleeping bags available, heat another and put that over them too.

- Drink bottles can be filled with warm (not hot) water, screwed tight and placed in the sleeping bag to help the warming process.
- If the patient is conscious, give them warm (not hot) drinks that contain sugar, such as powdered fruit drink or Milo. Make the first drink diluted to half the normal strength. Dehydration often accompanies hypothermia so this needs to be addressed too.
- Do not give them coffee, tea, or alcohol.
- If the patient is unconscious or drowsy, try to wake them or keep them awake. Talk to them, asking questions to try and keep them alert. If they are in this state, do not give them drinks or food.
- As the patient warms, feed them small amounts of high energy food such as chocolate or biscuits. Do not feed them too soon as digestion requires energy and may further weaken a hypothermic person. The patient should no longer be feeling cold to the touch when you give them food.
- If the patient becomes unconscious, check to see if they have a pulse. If the patient has no pulse, administer CPR. If possible, keep a record of what time each step in this process took place. This will help emergency services monitor the patient when they arrive. Don't allow a recovering patient to become active, keep them rested and warm until emergency services arrive.

Hypoglycaemia

Hypoglycaemia is a condition in which your blood sugar (glucose) level is too low and your body does not have enough energy to replace what is being lost. Effectively this means you are not consuming enough sugars to replace those that are being used.

Signs of hypoglycaemia, include:

- Fatigue and tiredness
- Clumsiness, anxiety and irritability

To prevent hypoglycaemia, eat high energy foods regularly so that blood sugar levels are maintained. Hypoglycaemia can be treated immediately

by giving the patient high energy food such as chocolate, sweets or muesli bars. The recovery can be almost instant.



FIG. 122. High energy food options - Image: Mike Ng

Frostbite

Frostbite occurs with prolonged exposure to temperatures below zero degrees, where your skin and underlying tissues freeze. To prevent frostbite, wear gloves to protect your fingers and a beanie or balaclava pulled down over your ears to keep skin dry and warm.

Signs of frostbite include:

- Cold, prickly skin
- White, waxy skin
- Numbness or pain to touch

To treat mild frostbite, rewarm the skin using warm water or place under a warm body part for a short period. Do not rub the affected area, as rubbing can damage underlying frozen tissue. Once the skin has thawed, protect the area by loosely wrapping it in a bandage and seek immediate medical assistance. Serious frostbite can occur by being stuck in sub-zero temperatures for a long period of time, if the frostbite is severe, seeking urgent medical attention is vital.

Snow Blindness

Snow blindness is caused by the reflection of ultraviolet light in the snow, causing 'sunburn' to the eyes and can occur even in overcast conditions. It can be easily avoided by wearing protective sunglasses or ski goggles when in the snow.

Symptoms include:

- Eye pain, and blurred vision
- Burning or gritty sensation in the eye
- Sensitivity to light

To treat snow blindness, the best thing to do is give your eyes a rest, stay in the shade and wear sunglasses to reduce the amount of light exposure. Try to keep your eyes moist by lubricating them with saline solution from your first aid kit and if you wear contacts, take them out. Do not rub your eyes, as this will worsen the irritation. Recovery from snow blindness may take several days.

Dehydration

Dehydration occurs when you use or lose more fluid than you take in and your body doesn't have enough water to carry out its normal functions. Dehydration may also occur from severe diarrhoea or vomiting.

To prevent dehydration, drink plenty of fluids especially if you are in a warm, dry environment where you are sweating more than normal. The human body needs around 3 litres of water a day when exercising so drink small amounts regularly, a platypus or Camelbak hydration system is ideal.

Signs of dehydration include:

- Increased thirst
- Light headedness

- Headache
- Dry mouth
- Tiredness
- Muscle cramps
- Confusion
- Dark coloured, strong smelling urine

To treat dehydration, you need to replenish the fluid in the body by sipping water or preferably, electrolyte sports drinks. Becoming fully rehydrated can take several hours, during this time ensure that you prevent further fluid loss by resting and eating larger meals.

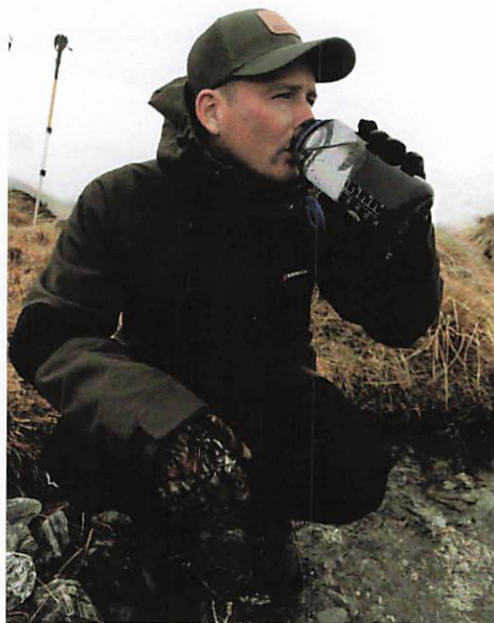


FIG. 123. It is very important to keep hydrated - Image: Cam Henderson

Hyperthermia (Heat Stroke)

Hyperthermia, also known as heatstroke, is caused by having an abnormally high body temperature. It is caused when your body generates more heat than it can release. Untreated this can cause organ damage which can be fatal.

Signs of hyperthermia include:

- Fever
- Headache
- Confusion and slurred speech
- Dry, reddened skin
- Nausea and vomiting
- Rapid breathing and increased heart rate

Hyperthermia can be prevented by drinking plenty of water, managing your clothing layers, shading yourself from the sun and restricting the amount of time that you are exposed to it.

To treat hyperthermia, the first priority is to cool the person as quickly as possible. This can include immersion in a cold stream or placing a cool, wet cloth on the forehead and other exposed parts of the body. Sipping cool water, loosening or removing excess clothing, laying down, splashing and fanning the person will also help. Above all, the head must be cooled quickly to prevent brain damage.

Advanced heat stroke is a genuine emergency, so contact emergency services immediately and activate your personal locator beacon to ensure rapid evacuation.

Exhaustion

Exhaustion is the feeling of extreme and persistent tiredness where you are completely drained of energy. This can result in loss of motivation and focus, to the point you feel like giving up, both physically and

mentally. Exhaustion is often the cause of bad decision making, leading to more serious problems.

Exhaustion can be prevented by making sure you are fit and well, ensuring you do not exceed your capabilities and by managing the physical limitations of the party. Ensure you have adequate sleep, enough food and drink, and take breaks often. Carefully manage your equipment so you aren't carrying more weight than you're capable of, this includes deciding how much meat you might be able to carry.

If you see members of your party becoming exhausted, then you should consider changing your route or plans for the day. Remember that you still need to return to camp or your vehicle.

It is important to recognise your own limitations and the signs of exhaustion, stopping to assess your situation when you feel it may be setting in.

Signs of exhaustion include:

- Tiredness
- Headache
- Sore, aching muscles or cramps
- Weakness
- Slow reflexes and responses
- Loss of coordination
- Impaired decision making and judgement
- Irritability

Treatment for exhaustion involves stopping to take a break, drinking plenty of water and eating high energy foods. When you or members of your party are exhausted, this is where you should turn around and head back to camp or stop and make camp for the evening. It is important to reassure exhausted party members that it is okay to turn around and go back or change your plans. Long term recovery from exhaustion includes having plenty of rest, eating proper meals, and hydrating often.



FIG. 124. Hunting is strenuous, take breaks often - Image: Zeff Veronese

Allergic Reactions

For most people a sting from a bee, wasp, or tree nettle causes only pain or discomfort, but for some the reaction may be a lot more serious. Most people who are allergic to stings already know and will carry the required medication (usually antihistamines or an EpiPen) on every trip. Make sure that details of allergies and treatment are shared within the party.

Be aware that some antihistamines have a sedative effect, so consider this when using firearms.

Wasps

Wasps can be common or prolific in lower altitude beech forests. Wasps can be aggressive when disturbed and have a painful sting. These insects are distinctively yellow and black striped, and their nests can be found in holes in the ground, in trees and under logs. They are not active in winter but in summer, populations can grow rapidly so when hunting in beech forest during the summer months, keep a watchful eye for nests.

If you do disturb a nest, then you need to move away from it as quickly as possible as wasps will chase you. Keep moving until you are clear of danger.

Wasps are also attracted to meat and may make it difficult for you to process an animal without being stung. They are also attracted to sweet foods, so be careful when eating or drinking if wasps are around.

Bees are generally less aggressive than wasps, but bee stings can also cause an allergic reaction. If stung by a bee, remove the sting by using the sharp edge of a knife to scrape the protruding sting out. Do not try to remove the sting with your fingers as you risk introducing more venom.

Nettle (onga onga)

Stinging nettle is a plant found in both the North and South Islands up to around 600 metres elevation. It is common on bush edges and alongside streams and in gullies.

Contact with the brittle, pointed hairs on the leaves and shoots causes a burning sensation and tingling for some days, followed by numbness that can last for some time. Red or white swelling may appear and in severe cases an anaphylactic reaction may result which can be life threatening. Horses and dogs can also react badly to stinging nettle, so take care when hunting with them.



FIG. 125. Stinging nettle or Onga Onga

Treatment of wasp, bee, or nettle stings:

- Take antihistamine tablets and apply ointment.
- Dip the affected part in cold water for some relief.
- Monitor for signs of an anaphylactic reaction where urgent treatment will be needed (see below).
- If there is a known allergy, administer EpiPen or prescribed medication.

Anaphylactic Shock

Anaphylactic shock is a severe allergic reaction which may be life threatening if not immediately treated. This is most often caused by an allergy to food, insect stings, and some medications.

The symptoms appear very quickly and include:

- Tight chest and throat
- Difficulty breathing (complete airway blockage in severe cases)
- Blotchy, red skin
- Swelling around the neck and eyes
- Nausea
- Low blood pressure

Treatment of anaphylactic shock involves:

- Helping the patient to administer their own emergency medication, such as an EpiPen.
- Constantly monitor breathing, airways and pulse.
- If necessary, begin CPR.
- Activate Personal Locator Beacon.

It is recommended that you receive professional training on the current best practice for treatment of anaphylactic shock.

Cramp

Cramp is the painful seizing of muscles that can occur during or after intensive exercise. Cramp is usually associated with prolonged activity, being cold, tired, unfit or dehydrated. Areas most susceptible include the thighs, calves and arches of the feet. Some people are more prone to cramp than others, and if you are prone to cramp you need to manage

it. To reduce the likelihood of getting cramp, you can take supplements such as salt, potassium and magnesium with plenty of water.

To relieve cramp, stretch the affected muscles, warm the affected area and restore lost fluids and electrolytes. Stop exercise and rest to help muscles recover.

Blisters

Blisters are generally caused by poorly fitting footwear or socks and can be common with new boots. It is recommended that when buying hunting boots, you spend the time to ensure they fit properly. It is also important to have the right sock and boot combination that works for you.

Good practice is to wear in new boots on short walks to avoid getting blisters on longer hunting trips. Blisters can also be prevented by covering sensitive areas (especially the heels) with a sticking plaster or blister pad and keeping feet clean and dry.

Bad blisters can ruin a hunting trip, so it is important to take all steps to prevent them. If you need to treat a blister, drain it first before covering with antibacterial ointment and a sticking plaster.

Chafing

Chafing is usually caused by rubbing of the skin against loose fitting clothing. It is most common between the inner thighs and between the buttocks, especially during long walks and when you are wet or sweating. Cotton clothing can make chafing more likely.

Chafing can usually be prevented or treated by applying a skin cream or Vaseline to the area.

Fatalities

If you do encounter a fatality while hunting, then you should contact Police or activate your PLB as soon as possible to report the incident. Make sure that you protect the scene, leaving it undisturbed, with the

exception of making the area safe for example unloading a firearm. Preserve the dignity of the deceased by covering them. Consider the wellbeing of other members of the party and provide reassurance.

Wait for Police and follow their instructions. Be prepared to provide Police with any information about the incident. Ensure that all people remain present to provide information as well.

Personal Locator Beacons (PLB)

A PLB is an electronic transmitting device, designed to alert rescuers to a life-threatening situation. You may activate your PLB if you have a genuine concern for yours or someone else's welfare and it is reasonable to think their life is at stake or you believe there is imminent danger. Examples may include becoming trapped down a bluff, or where someone is having a severe medical emergency. It would also be acceptable to activate your PLB when a person has suffered an injury or illness that immobilises them to a degree that a response by Search and Rescue (SAR) personnel would almost certainly be required (for example, a broken ankle).

Once activated, a PLB will send a signal via satellite to the NZ Rescue Coordination Centre (NZRCC). It is important that your PLB is registered so that the NZRCC is able to contact your emergency contacts



FIG. 126. Personal Locator Beacons - Image: Mike Ng

and gather information about your trip to coordinate a more effective response. Air rescue will be notified and if the weather permits, they will be deployed to your location within a short time.

Before starting your trip, familiarise yourself with the procedures to activate your PLB and check the batteries have not expired.

Consider first using two-way communications such as your mountain radio or cell phone to contact emergency services. If these are not available, or time is an issue then you may activate your PLB. Do not activate your PLB for injuries or ill health where basic first aid can improve the situation. Always consider getting out of a situation yourself where possible.

Safety Around Helicopters

Accessing remote hunting blocks by helicopter is now quite common. Flying in a helicopter is an exciting experience but things can go wrong and passengers need to know their responsibilities and have a heightened regard for safety.

The pilot is ultimately responsible for your safety, by ensuring the helicopter and flying conditions are safe and that a proper pre-flight safety briefing is delivered and understood by all passengers. You must listen carefully to the pilot's instructions and if you do not understand any part of the briefing you should ask for clarification. Expect to be weighed or to provide accurate weights, for yourself and all your equipment. It is a good idea to do this at home, to ensure you are not over the weight allowances and do not have to leave behind any gear.

You may be asked by the pilot to help load the helicopter with equipment. Follow all loading and boarding directions given by the pilot or their crew.

During the safety briefing, the pilot will indicate to you where the emergency equipment is kept on the helicopter. This equipment will include first aid kit, survival bag, fire extinguisher, crash axe and emergency locator transmitter.

When on board, make sure you have easy access to the doors and that you know how to open them. If there is an accident, wait until the pilot



FIG. 127. Loading a helicopter - Image: Mike Ng

gives the OK to exit the helicopter or wait until everything has stopped moving before exiting. If you see the pilot exit, then you can follow them.

You may at some time be travelling in a helicopter without your gear. If this is the case, ensure you are wearing adequate clothing and footwear for the environment into which you are travelling. If the helicopter does go down, or you are left on a remote landing site when the helicopter is unable to return, you need to be self-sufficient. Carry your survival kit at all times.

Before flying, check with your pilot as to the requirements for transporting firearms. Ensure all firearms are completely unloaded and where possible bolts and magazines are removed and stowed separately. Use a rifle case when possible to protect the firearms from any damage whilst being transported. Remember to follow this protocol when being picked up in the field. When approaching a helicopter, show the pilot that the firearm is safe and clear of ammunition.

Check with the helicopter company as to how gas canisters or stove fuel can be carried as there can be restrictions around carrying fuel.

Do not touch any of the flight controls, including foot controls if you are in the front seat next to the pilot. Do not slam the doors of a helicopter, they are designed to be drawn shut and then latched.

You are legally required to wear a seatbelt in a helicopter. Fit and adjust the seatbelt as soon as you are seated and do not release it until you have been told by the pilot that you can exit the helicopter.

Most helicopters have radio headsets for the passengers. Chatting with the pilot is a good way to learn about the area you are hunting. Do not interrupt the pilot when they are talking to air traffic controllers or other aircraft.

If you are assisting with unloading equipment, do not throw any items. Equipment can be passed in a chain away from the landing area. All loose, lightweight articles including packs or hats, need to be secured until the helicopter has departed. This will prevent any articles being sucked up into the helicopter's blades or into the engine. Never reach up or chase after loose gear that has blown away.

Make sure that you are packed and ready well before the scheduled pickup time. If there is the possibility of delay, perhaps because of bad weather, re-establish your camp in such a way that it can easily be packed up in a short time. The window of opportunity may be narrow for pick up. Reassess any extra weight, such as meat, and let the pilot know before loading.

When you are being picked up by helicopter, delegate someone in the party to prepare and control the landing site and ensure it is safe. This person will make sure that nobody moves around while the helicopter is landing and that nobody goes near the danger areas of the helicopter (see safety around helicopters graphic). Wearing high visibility clothing will help the pilot to see where everyone is.

Never approach or leave a helicopter from the uphill side. The rotor can be very close to any uphill terrain when the blades are in the horizontal plain. Always approach the helicopter within the safe area from the downward slope side. Always approach from the front so that the pilot can see you and make eye contact and if the pilot needs to they can use hand signals for you to stop, stay or approach.

Keep your head down when under the main rotor blades and carry gear below waist level. Do not carry any objects vertically, like walking poles or an upright rifle.

If you are blinded by dust or snow, squat down and wait until you can see where you are going. To avoid being blinded turn away when the helicopter is landing or lifting off.

If disembarking the helicopter while it is hovering, get out and off in a smooth unhurried manner on the pilot's command. Do not approach or leave a helicopter when the engine and rotors are running down or starting up as they will be closer to the ground when moving more slowly.

Even if you have not flown into your hunting area, you may end up flying out in an emergency response. Helicopters are commonly used for search and rescue, deploying medical help and evacuating patients. It is important that detailed information is relayed to emergency services so that if a helicopter is deployed they can respond effectively. Considerations for information to be provided include:

If there is a helipad nearby and if so, what are the coordinates?

- If there is no helipad, is there a place close by for a helicopter to land safely, such as a riverbed or clearing. Ensure the landing area is stable and solid.
- If there is no landing site nearby then relay this information and emergency services may reassess.
- Provide weather details such as wind strength, intensity, and direction. The pilot will land into wind. If the cloud base is low or there is fog that will affect visibility, then also relay this information.
- The landing area needs to be free of hazards. Look up for wires or tree branches and look on the ground to ensure there is a flat area for the helicopter skids to sit. Relay any hazards to the pilot.
- Make the landing site obvious, for example by using a high visibility marker. Direct the pilot by standing with your back to the wind and arms outstretched to the side in front of where you want the helicopter to land.
- At night you can assist a helicopter to land by using a torch or flame to indicate your position or landing area, especially if night vision

equipment is being used. Make sure you do not shine any light at the helicopter as you will blind the pilot. It is helpful for individuals to wear reflective clothing if available.

- At times helicopters may not be able to land and a winch will be used for the rescue. A crew member will be lowered down and they will take control of the communications and evacuation.
- Flying into a hunting area by helicopter should be a lot of fun. Remember your responsibilities as a passenger. Follow the instructions of the pilot and should something go wrong, follow all safety procedures.



FIG. 128. Follow all instructions around helicopters - Image: Mike Ng

Chapter 9: Outdoor Emergencies & Survival

Ngā Tikanga Ohotata, Te Oranga Tonutanga

Key Learning Outcomes:

- Explain basic survival techniques
- Describe the contents of a basic first aid kit
- Describe the contents of a survival kit
- Describe what to do when lost or separated from the party
- Describe what to do for an overdue party member or party
- Light a fire and make an emergency shelter
- Describe the main safety procedures around helicopters
- Explain basic search and rescue methods and how to assist searchers
- Describe what to do for an ill or injured party member
- Explain the symptoms, causes and treatment of hunting related medical conditions

Notes

CONCLUSION

Kupu Whakatepe

On completion of the HUNTS course you will have learned the basic skills required to set you on the path towards becoming a safe, ethical and successful hunter. It is now important to develop your experience, knowledge, confidence, and contacts to start putting everything into practice.

There is no substitute for getting out and going hunting to gain experience, so get out hunting as often as you can. Start by exploring hunting areas close to where you live. Hunting areas can be identified by studying topographic maps and DOC resources and by talking to other hunters, for example members of your NZDA branch. Other hunters may be able to make hunting area recommendations but do not expect to be told exact locations.

You can also extend your skills and knowledge by reading hunting books and magazines or watching hunting videos. YouTube has lots of great hunting related content and you can learn about different game species and hunting areas that may be of interest to you.

Fitness is a critical factor for your hunting enjoyment and success so try to maintain a good level of base fitness that is sufficient for the types of hunting trips you go on. Being fit means you can access more remote areas with less human activity, wake up feeling fresher for early morning starts, and reduce fatigue and exhaustion that may lead to bad decision making.

Each hunting trip requires research and planning on your hunting area including the terrain, the game species you are hunting, the weather, and equipment required. Careful consideration should be given to whether the trip you are planning is suitable based on yours and your hunting companions levels of experience and fitness.

The success of your hunting trip should not depend on whether you harvest a game animal or not. The reality is that it takes most new

hunters many trips to harvest their first game animal. It is important to appreciate hunting for the whole experience of being outdoors, observing flora, fauna and landscapes, getting exercise and spending time with friends. Treat the success of a trip as gaining experience and developing hunting skills while completing a trip safely, and think of harvesting a game animal as the icing on the cake.

Share the experience of your trip on your return with friends, family and other hunters. Take photos and consider writing stories or articles to enter NZDA photographic and trophy competitions.

Once you gain more confidence and experience, consider introducing new hunters to the sport on your next trip so that our heritage is shared and continued. Many hunters discover that helping a new hunter shoot their first deer can be just as rewarding as stalking and shooting an animal themselves. Further to this, introducing your children and other young people can set them on course for a lifetime of healthy outdoor recreation.



FIG. 129. Happy Hunting! - Image: Mike Ng

Tips for planning hunting trips

- Using satellite imagery tools such as Google Earth can give you a different perspective on hunting areas.
- Ensure you have the necessary permits if hunting public land, or permission from the landowner or controlling authority if hunting private land. Ensure you understand the conditions of your permit or permission and abide by these conditions. Shooting game on land without permission is illegal hunting.
- Research the game species you are targeting to learn about their habitat and behaviours.
- Consider the distance you might be shooting and whether this is within your shooting ability. Ensure your rifle is of sufficient calibre to ethically kill the game you are hunting.
- Make sure your planned trip matches your level of experience and consider further training to develop skills for hunting in new environments. For example, training to use an ice axe and crampons is required for alpine hunting in snow and ice.
- Select the right equipment based on the environment you are hunting, the duration of your trip, expected weather and time of year. Keep your equipment well maintained.
- Choose hunting companions that you get along with, have similar levels of experience and fitness, are safety conscious, and will be reliable if there is an emergency. Changes to the trip plan should consider the competencies of the whole group. Your hunting companions will become some of your best friends as you go through the highs and lows of hunting together.
- All party members should understand the purpose and individual goals for the trip, e.g. trophy or meat, scouting a new area, photography etc.
- Agree on how trip costs are to be shared before you leave.
- Leave trip intentions with a trusted person preferably using the following recommended intentions form at www.adventuresmart.nz and ensure all key information is disclosed in your intentions form and remember to inform your trusted person when you return.
- Carefully study weather forecasts in the days leading up to your trip. Don't be afraid to cancel or postpone trips if the weather is bad, especially in alpine environments or when river crossings are required.



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APPENDIX 1.

Personal First Aid Kit

Wound bandage x 2 (heavily padded)	
Plasters	
Strapping tape	
Burn treatment	
Elastic bandage	
Sterile pads	
Sterile wound dressing	
Butterfly closures	
Disposable gloves	
Butterfly strips (steri-strips)	
Antiseptic	
Pain relief	
Antihistamines	
Scissors	
Tweezers and needle	
Blister patches	
Emergency blanket	

Survival Kit

Matches or lighter	
Fire starters (e.g., rubber)	
Torch	
Whistle	
Shelter (fly), bivvy, or survival bag	
Emergency food	
Signaling equipment (e.g., mirror)	
Small, sharp backup knife or multi tool	
2 metres of cord	

Hunting Kit

Firearm (and bolt)	
Magazine & ammunition	
Rangefinder (optional)	
Binoculars	
Knife & steel	
GPS & spare batteries	
Map & compass	
Communication device (e.g., PLB)	
Water bottle (or platypus)	
First aid kit	
Survival kit	

Clothing and Equipment

Day Trip

These are reference lists and as such some items will be carried in your pack and others may not be relevant for your trip.

Clothing	Equipment
Boots	Day pack & liner
Socks	Hunting kit
Gaiters	Head torch
Shorts	Spare batteries
Long pants or leggings	Navigation equipment
Wool or synthetic top	Toilet paper
Shirt	Communication device/s
Jumper	Survival kit
Waterproof jacket	First aid kit
Fleece/woolen hat or balaclava	
Sun hat	
Gloves	

Overnight or Multi Day Trip

To apply the principles of layering you need one layer of under clothing, one middle layer and one top layer. For camp you will need an additional under layer and an additional middle layer.

Clothing

Equipment

Boots		Pack & liner	
Socks		Hunting kit (Survival kit & First aid kit)	
Gaiters		Navigation equipment	
Shorts		Head torch	
Thermal top & bottoms		Spare batteries	
Long trousers		Toilet paper	
Long fleece shirt		Sleeping bag	
Waterproof jacket		Sleeping mat	
Waterproof over trousers		Tent / Fly (if camping)	
Fleece/woolen hat or balaclava		Cooking stove	
Sun hat		Fuel for stove	
Gloves		Cooking pot/pan	
Underwear		Cutlery & bowl/mug	
Spare Dry Clothing:		Sunscreen	
Socks		Insect repellent	
Woolen or synthetic fleece top		Plastic bags	
Thermal top & bottoms			
Underwear			
Warm jacket (e.g., puffer)			
Footwear for camp (e.g., sandals)			

Food

Day Trip

This list is based on having breakfast and dinner at home.

Clothing

Water (about 2-3L per person)	
Muesli or chocolate bars	
Fruit	
Scroggin or sweets	
Electrolyte sachet	
Lunch	
Tea, coffee, milk, and sugar (if taking thermos or stove)	
Emergency food (see Survival kit)	

Emergency Food

Some options for emergency food include:

- ☐ One square meal bars
- ☐ Dehydrated meals
- ☐ Muesli bars, dried fruit, or nuts
- ☐ Instant noodles

Overnight or Multi Day Trip

Always carry emergency food for an unintended night out.

This list is a general recommendation and will vary depending on cooking equipment, length of trip, and whether you are camping or staying in a hut.

Meal	Food	
Breakfast	Muesli, oats or cereal	
	Milk powder	
	Dehydrated or ready to eat breakfast	
	Up & Go (liquid breakfast)	
Lunch	Bread/wraps/crackers	
	Cheese	
	Salami	
	Tuna	
Dinner	Dehydrated or ready to eat meal	
	Rice, instant mash potato or dehydrated vegetables	
	Instant soup	
	Instant noodles	
Snacks	Scroggin/chocolate	
	Muesli or fruit bars	
	Dehydrated fruit and meat	
Drinks	Tea, Coffee, Milo	
	Milk powder	
	Powdered sports drinks (electrolytes)	
	Water	

APPENDIX 2.

Tararua Biscuits Recipe

- 4 cups rolled oats
- 1 cup brown sugar
- 250g butter
- 2 cups wholemeal flour
- $\frac{1}{2}$ teaspoon salt
- 1 tablespoon golden syrup
- Optional: 2 tablespoons sweetened condensed milk, 1 cup raisins, 1 cup bran or wheatgerm, 1 cup nuts, 1 cup shredded coconut

Melt butter and syrup in a large pot. Stir in the dry ingredients.

Add a little warm water (or condensed milk) so the mixture just sticks together.

Pour this dry mixture into a baking dish greased lightly with butter and press flat with a fork.

Cut down the centre and then divide into about eight pieces.

Bake at 160° C for around 30 minutes or longer if you prefer them lighter, drier and harder.

Remove from the oven and allow to cool before dividing along the cuts with a knife and wrapping individually.

This recipe makes enough to last one person about a week, but the biscuits will last indefinitely.

APPENDIX 3.

Introduction to The Douglas Score

The Douglas Score is a system for measuring and evaluating Antlers, Horns and Tusks by symmetrical size. The system was devised by the late Norman Douglas who first used it at the Waikato Branch of NZDA on the 25th of June 1949 for judging their trophy entries. On the 2nd of August 1958 NZDA formally adopted it for use by the Association.

A booklet *The Douglas Score* was published in 1959 and is now in its 3rd edition, available from the national office of NZDA along with the appropriate tape measures - a must have if you wish to become an official Douglas Score measurer. All measurements are taken using the Imperial system.

It is a simple formula whereby the length of antlers horns and tusks are taken together with the measurements of the tines and beams. The shortest measurement from either side is then doubled giving a symmetrical size to be entered in the score column. When all measurements are taken and added together a final score can then be achieved. All measurements are taken to the nearest one eighth of an inch.

Additional measurements on antlers for spread and span are also taken and these contribute to the score. On Fallow deer, palm length and width

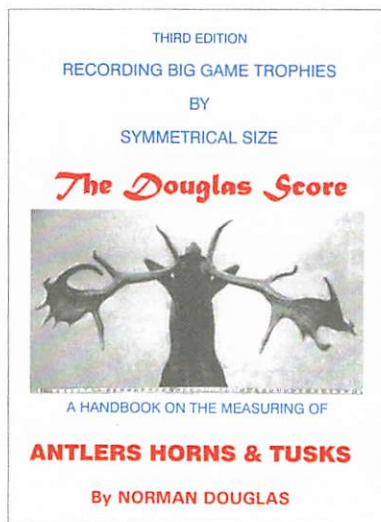


FIG. 130. The Douglas Score Handbook

with and without points are also taken and the shortest measurements are doubled. There is a set of spread deadlines for all antler trophies and by following them a spread and span factor is achieved.

Horns are measured over the outside curve and around the bases. In wild sheep and goats the spread measurement is also taken. No spread measurement is applied to chamois, tahr or pig tusks.

Pig tusks are measured either in the jaw or extracted.

Seminars are held on a regular basis through the NZDA national office at different Branches throughout the country. A typical seminar would start with an introductory talk by a coordinating tutor on the history of the Douglas Score and a general outline of the procedures to be followed during the course. All trainees are tutored on how to measure the different species of game animals in NZ. Certificates are issued to those who have qualified to become official measurers. There are five different levels that can be obtained with coordinating tutor being the highest.

The value of a trophy head is in the eye of the beholder regardless of the score it achieves but having a consistent measuring system like the Douglas Score ensures the recording by symmetrical size can be referenced long after a trophy has been lost.

RECORDING BIG GAME TROPHIES BY SYMMETRICAL SIZE

ROUND-HORN DEER HEADS

(DOUGLAS SCORE)

OWNER				
KILLED BY				
LOCALITY & DATE				
SPECIES & POINT NUMBER <i>Red deer</i> $7+7=14$				
STEEL TAPE MEASUREMENT OF	SHORTER MEASUREMENT DOUBLED*		SCORE*	FACTORS
	LEFT	RIGHT		
LENGTH	41	43	82	82
SPREAD <i>45"</i>	$(2 \times 3 = 6) =$		39	70
SPAN			31	
BEAM	6	$5\frac{7}{8}$	$11\frac{3}{4}$	$31\frac{1}{4}$
CORONET	$10\frac{1}{2}$	10	20	
BROW	14	$14\frac{1}{2}$	28	$86\frac{1}{4}$
BEZ	$14\frac{3}{8}$	$14\frac{3}{4}$	$28\frac{1}{4}$	
TREZ	15	16	30	
TOPS				
<i>Royal tine</i>	12	$11\frac{1}{2}$	23	80
<i>Inner off royal</i>	5	$4\frac{1}{2}$	$9\frac{1}{2}$	
<i>Back tine</i>	17	16	32	
<i>Outer off back</i>	8	$7\frac{3}{4}$	$15\frac{1}{2}$	
TOTAL SCORE			350	

An example showing the method of entry when excess spread reduction of score is required.

SKULL LENGTH OVER CURVE: $17\frac{1}{2}"$
 SHOULDERS HEIGHT OF STAG:
 MEASURED BY:
 ASSISTANT:

FIG. 131. Example of a completed scoresheet

APPENDIX 4. – Outdoor Intentions Form

New Zealand OUTDOORS INTENTIONS FORM

Safety is your responsibility so tell someone, it could save your life | www.adventuresmart.org.nz



OUTDOOR USER INSTRUCTIONS

- OUTDOORS USER(S) may select either of these options to complete your Outdoors Intentions details via a downloadable form.
- **Option 2a.** Download the form. Save to your system. Print form. Complete details by hand and give to your TRUSTED CONTACT.
- **Option 2b.** Download the form. Save to your system. Type directly into the form. Save file. Attach to an email and send to your TRUSTED CONTACT.
- None of the fields on the form are compulsory, but the more details you provide, the better the search and rescue agencies will be able to respond should the alert be raised.
- By using this form you agree to the terms and conditions.
- Whatever method you use, it is recommended that you check that your TRUSTED CONTACT has received your Outdoors Intentions prior to leaving on your trip.
- Remember to tell your Trusted Contact as soon as you have returned safely, to avoid unnecessary alarm and possible involvement from New Zealand Police.

For tips, advice and links to help keep you safe throughout your land, snow, water, boating and air activities in New Zealand, visit www.adventuresmart.org.nz



TRUSTED CONTACT INSTRUCTIONS

- You have been nominated as the TRUSTED CONTACT for the OUTDOORS USER listed below, so you can raise the alarm and contact the appropriate authorities if for any reason they do not return by the expected date and time below.
- At the 'expected date and time' below, immediately try and contact the 'OUTDOORS USER' directly, if you have not already heard from them.
- If unsuccessful try and contact other group members (if applicable).
- If unsuccessful wait 1 hour and then repeat the process of contacting the OUTDOORS USER and if applicable other group members. If unsuccessful and you are extremely concerned or bad weather has set in, go straight to contacting the New Zealand Police.
- If you are still unsuccessful in contacting the OUTDOORS USER or any members of the party, telephone 111 (or if outside New Zealand call +64 4 381 2000) ask for the Police and tell them you wish to report a missing person(s) who is on a trip in the outdoors and has not returned by the expected date and time. You will need to provide the Police with the information below.

EXPECTED DATE OF RETURN / / TIME : AM/PM

WHAT ARE YOU DOING AND WHERE ARE YOU GOING?

Start Date: / / Time: : AM/PM Activity:

Intended track/route/huts and alternatives:

Note: Always enter your progress and changes to plan in hut logbooks, even if you don't stay overnight.

OUTDOOR USER/LEADER DETAILS (Overseas visitors please include your passport number and your nationality.)

1	Family name: <input type="text"/>	Address or Passport Number & Nationality: <input type="text"/>
	First name: <input type="text"/>	
	Cell Number: <input type="text"/>	Medical Conditions & Medication: <input type="text"/>
	Home Phone: <input type="text"/>	

WHO ARE YOUR GROUP MEMBERS? (Overseas visitors please include your passport number and your nationality.)

2	Name: <input type="text"/>	Phone: <input type="text"/>	Medical Conditions & Medication: <input type="text"/>
	Address/Passport No./Nationality: <input type="text"/>		
3	Name: <input type="text"/>	Phone: <input type="text"/>	Medical Conditions & Medication: <input type="text"/>
	Address/Passport No./Nationality: <input type="text"/>		

APPENDIX 5. – Safety Around Helicopters



Safety Around Helicopters

APPROACHING OR LEAVING A HELICOPTER



Do not approach without receiving a visual signal from the pilot. Never leave without a visual or spoken instruction to do so. Stay where the pilot can see you at all times.



On sloping ground always approach or leave on the downslope side for maximum rotor clearance.



If blinded by swirling dust or grit, STOP – crouch lower, or sit down and wait for assistance.



If disembarking while the helicopter is hovering, get out slowly and smoothly when cleared to by the pilot.



Never approach or leave a helicopter when its engine and rotors are running down or starting up.



Crouch while walking for extra rotor clearance. Always remove hats. Never reach up or chase after anything that blows away.



Carry long objects horizontally below waist level – never upright or on the shoulder.

TAKEOFF, LANDING, AND LOADING OPERATIONS



Clear helipad of loose articles. Secure your gear from the effects of rotor wash.

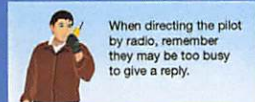


When transporting personnel, loading staff should ensure that:

- Passengers are briefed on approaching and leaving the helicopter
- They are grouped together and positioned to one side of the landing zone
- They face away from helicopter during takeoff and landing
- Each person looks after their own gear
- They are ready to board in turn as soon as the pilot gives the signal, and they are escorted to the helicopter.



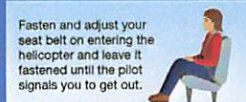
When directing the pilot for landing, stand with back to wind and arms raised.



When directing the pilot by radio, remember they may be too busy to give a reply.



After hooking up a cargo sling, move forward and to the side to signal the pilot. Ensure the sling is not across the skid. Never ride on the sling.



Fasten and adjust your seat belt on entering the helicopter and leave it fastened until the pilot signals you to get out.

Revised May 2012

APPENDIX 6.

Further Information & References

Books

.....

The New Zealand Weather Book, Erick Benstrum

Red deer in NZ, Roger Lentle and Frank Saxton

Stalking the Seasons Round, Roger Lentle and Frank Saxton

Alpine Hunting, Roger Lentle and Frank Saxton

The New Zealand Hunter's companion, Roger Lentle and Frank Saxton

The NZ Deer Hunter's Handbook, Alex Gale

Hunting Fallow Deer, Howard Egan

Wapiti Hunting in NZ, Simon Gibson

Mountain Safety Council Bushcraft Manual (Online)

Bruce Banwell's books on NZ game animals

A History of Hunting, NZDA

The How to Hunt Deer Handbook by Alex Gale (2006)

Magazines

NZDA Hunting & Wildlife magazine

Hunters Journal

The Fishing Paper & Hunting News

Rod and Rifle magazine, "Your Manual on Being a NZ Hunter"

Fish & Game Magazine

New Zealand Hunter magazine

New Zealand Outdoor

Online

New Zealand Deerstalkers Association Inc – www.deerstalkers.org.nz

NZ Police, Firearms Safety Code – www.police.govt.nz/about-us/publications/arms-code

Game Animal Council – www.nzgameanimalcouncil.org.nz

Fish and Game – www.fishandgame.org.nz

Department of Conservation (DOC) – www.doc.govt.nz

Mountain Safety Council New Zealand – www.mountainsafety.org.nz

Adventure Smart – www.adventuresmart.nz

Met Service – www.metservice.com

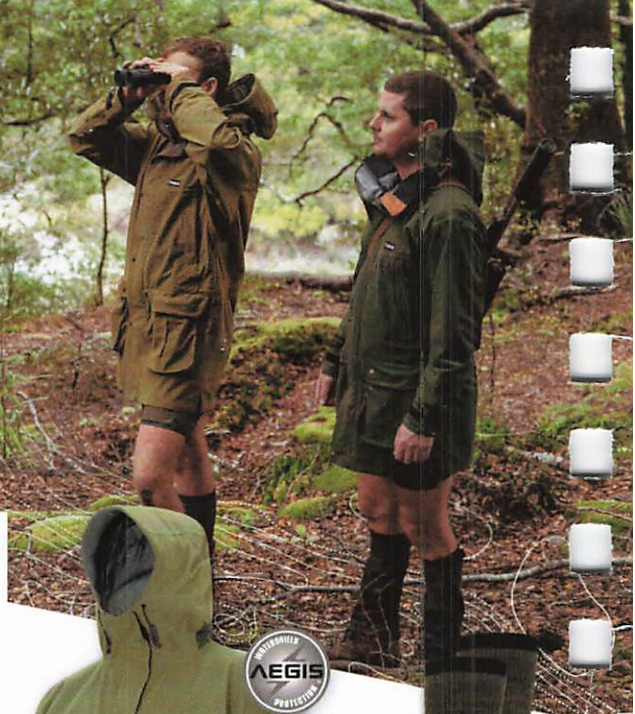
MetVuw – www.metvuw.com



ALWAYS CARRY THE RIGHT GEAR

Now that you're a hunter, you need to be properly prepared for the extremes the New Zealand outdoors can throw at you. It's a place where you will be measured.

A place where supreme demands can And will be placed upon you, your gear and its reliability. It's about trust. About intuition. About guts. About ensuring you have gear that could save your life.



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HUNTER SOCK
Heavy duty merino wool



THE HOODOO
Merino Base Layer



POLEYS
Hard-wearing brushed
tricot knit fabric



BUSH SHIRT
280gsm Polar Fleece



THE TOTEM
Merino Base Layer



RANGER SOCK
Heavy duty
merino wool



THE HOOD
280gsm Polar Fleece

WAPITI XP
AEGIS®
Waterproof
Jacket



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210gsm Microfleece



MICRO TOP
140gsm Microfleece



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Waterproof AEGIS® Fabric



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